STIC Search Report
EIC 1700

STIC Database Tracking Number 156785

TO:	From:
Fred Parker Location: 8D59 Art Unit : 1762 June 22, 2005 Case Serial Number: 10/799249	Usha Shrestha Location: EIC 1700 REMSEN 4B28 Phone: 571/272-3519 usha.shrestha@uspto.gov

Search Notes

SCAN ENTIRE DOCUMENT

STIC Search Results Feedback Form

EIC17000

Questions about the scope or the results of the search? Contact ***the EIC searcher or contact:***

Kathleen Fuller, EIC 1700 Team Leader
571/272-2505 REMSEN 4B28

Voluntary Results Feedback Form

- *I am an examiner in Workgroup:* ☐ *Example: 1713*
- *Relevant prior art **found**, search results used as follows:*
  - ☐ 102 rejection
  - ☐ 103 rejection
  - ☐ Cited as being of interest.
  - ☐ Helped examiner better understand the invention.
  - ☐ Helped examiner better understand the state of the art in their technology.

Types of relevant prior art found:

- ☐ Foreign Patent(s)
- ☐ Non-Patent Literature
  (journal articles, conference proceedings, new product announcements etc.)

- *Relevant prior art **not found:***
  - ☐ Results verified the lack of relevant prior art (helped determine patentability).
  - ☐ Results were not useful in determining patentability or understanding the invention.

Comments:

Drop off or send completed forms to EIC1700 REMSEN 4B28

Access DB# 155787

SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's Full Name: Fred Parker Examiner # : 72396 Date: 6/6/05
Art Unit: 1762 Phone Number 30 272 1426 Serial Number: 10/799249
Mail Box and Bldg/Room Location: REM 8D59 Results Format Preferred (circle): PAPER DISK E-MAIL

If more than one search is submitted, please prioritize searches in order of need.

****

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: _____

Inventors (please provide full names): _____

_____

Earliest Priority Filing Date: _____

**For Sequence Searches Only* Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.*

Pb. search cls 1-6 on NPL + foreign.

****

STAFF USE ONLY	Type of Search		Vendors and cost where applicable
Searcher: isshe	NA Sequence (#)		STN 460.70
Searcher Phone #:	AA Sequence (#)		Dialog
Searcher Location:	Structure (#)		Questel/Orbit
Date Searcher Picked Up: 6/21/05	Bibliographic		Dr.Link
Date Completed: 6/22/05	Litigation		Lexis/Nexis
Searcher Prep & Review Time: 60	Fulltext	X	Sequence Systems
Clerical Prep Time: 30	Patent Family		WWW/Internet
Online Time: 210	Other		Other (specify)

PTO-1590 (8-01)

422/180 181 190 195 230 236 239

10/799249 Gibertson

Claims

1. A method of treating selected parts of paint ball markers, comprising the step of applying a solid lubricant to those surfaces of selected working parts of a paint ball marker that are exposed to relative motion with another working part or with a paint ball projectile.

2. The method of claim 1 and further including a stop of hardening said selected parts before the step of applying said solid lubricant to said surfaces.

3. The method of claim 1 where the selected items of the working parts are coated with a material selected from a class consisting of metals, chemicals, ceramics, elements, graphite and polymers excluding lubricious properties.

4. The method of claim 3 wherein the metals include one of nickel, silver, zinc, copper, molybdenum and alloys thereof.

5. The method of claim 3 wherein the polymers include silicone, ptfe, uhmw polyethylene and other fluoropolymers.

6. The method of claim 1 wherein the solid lubricant comprises a thin film coating incorporating particles selected from a group consisting of molybdenum disulfide, graphite, silicone, carbon and fluoropolymers.

7. The method of claim 1 and further including the steps of:

(a) cleaning said surfaces with one of an alkaline and acid bath to remove any contaminants therefrom;

(b) rinsing said surfaces free of the alkaline or acid bath; and

(c) chemically etching said surface prior to applying the solid lubricant to said surfaces.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

CONFIRMATION NO. 8205

Bib Data Sheet

SERIAL NUMBER	FILING DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
10/799,249	03/12/2004 RULE	427	1762	20030057.ORI

APPLICANTS

Jonathan G. Gilbertson, Bloomington, MN;

Stephen M. Gilbertson, Bloomington, MN;

** CONTINUING DATA **********

This appln claims benefit of 60/453,990 03/12/2003

** FOREIGN APPLICATIONS **********

IF REQUIRED, FOREIGN FILING LICENSE GRANTED ** SMALL ENTITY **
** 05/27/2004

		STATE OR COUNTRY	SHEETS DRAWING	TOTAL CLAIMS	INDEPENDENT CLAIMS
Foreign Priority claimed	☐ yes ☐ no	MN	1	14	2
35 USC 119 (a-d) conditions met	☐ yes ☐ no ☐ Met after Allowance				
Verified and Acknowledged	Examiner's Signature Initials				

ADDRESS
23595
NIKOLAI & MERSEREAU, P.A.
900 SECOND AVENUE SOUTH
SUITE 820
MINNEAPOLIS , MN
55402

TITLE
Paint ball gun having permanent lubricated surfaces

FILING FEE RECEIVED	FEES: Authority has been given in Paper No. _____ to charge/credit DEPOSIT ACCOUNT No. _____ for following:	☐ All Fees ☐ 1.16 Fees (Filing) ☐ 1.17 Fees (Processing Ext. of time)

```
=> fil reg
FILE 'REGISTRY' ENTERED AT 12:28:47 ON 22 JUN 2005

=> d his ful

     FILE 'HCAPLUS' ENTERED AT 08:52:32 ON 22 JUN 2005
L1             1 SEA ABB=ON  PLU=ON  US20040180143/PN
                 D SCAN
                 SEL RN

     FILE 'REGISTRY' ENTERED AT 08:53:13 ON 22 JUN 2005
L2            12 SEA ABB=ON  PLU=ON  (12674-07-6/BI OR 1317-33-5/BI OR
                 7429-90-5/BI OR 7439-98-7/BI OR 7440-02-0/BI OR
                 7440-22-4/BI OR 7440-44-0/BI OR 7440-50-8/BI OR
                 7440-66-6/BI OR 7782-42-5/BI OR 9002-84-0/BI OR
                 9002-88-4/BI)
                 D SCAN
L3             1 SEA ABB=ON  PLU=ON  7439-98-7/RN
L4             1 SEA ABB=ON  PLU=ON  7440-02-0/RN
L5             1 SEA ABB=ON  PLU=ON  7440-22-4/RN
L6             1 SEA ABB=ON  PLU=ON  7440-50-8/RN
L7             1 SEA ABB=ON  PLU=ON  7440-66-6/RN
L8             5 SEA ABB=ON  PLU=ON  (L3 OR L4 OR L5 OR L6 OR L7)
L9             1 SEA ABB=ON  PLU=ON  9002-88-4/RN
L10            1 SEA ABB=ON  PLU=ON  9002-84-0/RN
L11            1 SEA ABB=ON  PLU=ON  1317-33-5/RN
L12            1 SEA ABB=ON  PLU=ON  7782-42-5/RN
L13            1 SEA ABB=ON  PLU=ON  7440-44-0/RN
L14            1 SEA ABB=ON  PLU=ON  SILICON/CN
                 D RN
L15            1 SEA ABB=ON  PLU=ON  7440-21-3/RN
L16        10193 SEA ABB=ON  PLU=ON  FLPO/PCT
                 E ALLOY/CI
L17       193324 SEA ABB=ON  PLU=ON  7439-98-7/CRN
L18       331087 SEA ABB=ON  PLU=ON  7440-02-0/CRN
L19        43083 SEA ABB=ON  PLU=ON  7440-22-4/CRN
L20       265771 SEA ABB=ON  PLU=ON  7440-50-8/CRN
L21        97285 SEA ABB=ON  PLU=ON  7440-66-6/CRN
L22       512556 SEA ABB=ON  PLU=ON  (L17 OR L18 OR L19 OR L20 OR L21)
                 AND AYS/CI

     FILE 'HCAPLUS' ENTERED AT 09:54:28 ON 22 JUN 2005
L23       959895 SEA ABB=ON  PLU=ON  L8

     FILE 'REGISTRY' ENTERED AT 09:59:21 ON 22 JUN 2005
L24       176847 SEA ABB=ON  PLU=ON  L17 AND AYS/CI
L25       293014 SEA ABB=ON  PLU=ON  L18 AND AYS/CI
L26        35359 SEA ABB=ON  PLU=ON  L19 AND AYS/CI
L27       202050 SEA ABB=ON  PLU=ON  L20 AND AYS/CI
L28        64411 SEA ABB=ON  PLU=ON  L21 AND AYS/CI

     FILE 'HCAPLUS' ENTERED AT 10:00:35 ON 22 JUN 2005
L29       175641 SEA ABB=ON  PLU=ON  L24
L30       329059 SEA ABB=ON  PLU=ON  L25
L31        34360 SEA ABB=ON  PLU=ON  L26
L32       249534 SEA ABB=ON  PLU=ON  L27
L33       108756 SEA ABB=ON  PLU=ON  L28
L34      1418329 SEA ABB=ON  PLU=ON  L29 OR L30 OR L31 OR L32 OR L33 OR
                 L23
L35        77463 SEA ABB=ON  PLU=ON  L16
```

```
L36       43475 SEA ABB=ON  PLU=ON  L10
L37       77463 SEA ABB=ON  PLU=ON  L35 OR L36
L38      171996 SEA ABB=ON  PLU=ON  L9
L39       10669 SEA ABB=ON  PLU=ON  L11
L40       93838 SEA ABB=ON  PLU=ON  L12
L41      298775 SEA ABB=ON  PLU=ON  L13
L42      414324 SEA ABB=ON  PLU=ON  L15
L43      768393 SEA ABB=ON  PLU=ON  L39 OR L40 OR L41 OR L42
L44      837276 SEA ABB=ON  PLU=ON  L43 OR L35
L45           3 SEA ABB=ON  PLU=ON  L44 AND PAINT(2A)BALL?
                D SCAN HIT
L46         118 SEA ABB=ON  PLU=ON  L44 AND PAINT(2A)(BALL? OR PART?
                OR SURFACE? OR MARK?)
L47           5 SEA ABB=ON  PLU=ON  L46 AND LUBRIC?
L48           7 SEA ABB=ON  PLU=ON  L45 OR L47
L49        1360 SEA ABB=ON  PLU=ON  L44 AND (PAINT? OR COLOR? OR
                COLOUR? OR DYE? OR PIGMENT?)(2A)(BALL? OR MARK? OR
                PART? OR SURFACE?)
L50          64 SEA ABB=ON  PLU=ON  L49 AND LUBRIC?
L51           4 SEA ABB=ON  PLU=ON  L50 AND DEV/RL
                D SCAN HIT
L52          36 SEA ABB=ON  PLU=ON  PAINT?(A)BALL?
L53           3 SEA ABB=ON  PLU=ON  L52 AND L44
                D SCAN HIT
L54           1 SEA ABB=ON  PLU=ON  L52 AND LUBRIC?
L55           2 SEA ABB=ON  PLU=ON  L34 AND PAINT?(2A)BALL#
                D SCAN HIT
L56       14868 SEA ABB=ON  PLU=ON  L34 AND LUBRIC?
L57         174 SEA ABB=ON  PLU=ON  L56 AND PAINT?
L58        1574 SEA ABB=ON  PLU=ON  L34 AND SOLID?(A)LUBRIC?
L59          10 SEA ABB=ON  PLU=ON  L58 AND (MARKER? OR PROJECTILE? OR
                GUN? OR (MOVING? OR OPERAT?)(A)(PART? OR BALL#))
L60      103566 SEA ABB=ON  PLU=ON  POLYSILIC? OR POLYSILOX? OR
                POLYSILIC? OR (SILIC? OR SILAN? OR SILOX? OR SI)(A)(POL
                YMER? OR COPOLYMER OR HOMOPOLYMER?)
L61          89 SEA ABB=ON  PLU=ON  L60 AND SOLID(A)LUBRIC?
L62           1 SEA ABB=ON  PLU=ON  L61 AND (MARKER? OR PROJECTILE? OR
                GUN? OR (MOVING? OR OPERAT?)(A)(PART? OR BALL#))
                D SCAN
L63        3146 SEA ABB=ON  PLU=ON  L44 AND SOLID?(A)LUBRIC?
L64          13 SEA ABB=ON  PLU=ON  L63 AND (MARKER? OR PROJECTILE? OR
                GUN? OR (MOVING? OPERATING?)(A)(PART? OR BALL# OR
                SPHER?))
L65          27 SEA ABB=ON  PLU=ON  L48 OR L51 OR L53 OR L54 OR L55 OR
                L59 OR L62 OR L64
L66           1 SEA ABB=ON  PLU=ON  L65 AND L1
                D QUE L65

    FILE 'WPIX' ENTERED AT 12:01:43 ON 22 JUN 2005
L67        4400 SEA ABB=ON  PLU=ON  SOLID?(A)LUBRIC?
L68          45 SEA ABB=ON  PLU=ON  L67 AND (MARKER? OR PROJECTILE? OR
                GUN? OR (MOVING? OR OPERATING?)(A)(PART? OR BALL# OR
                SPHER?))
                D SCAN HIT
                D L68 HIT
L69          29 SEA ABB=ON  PLU=ON  L68 AND (METAL? OR POLYMER? OR
                CERAMIC? OR GRAPHIT?)
                D L69 HIT
                D L69 HIT 2-3
```

```
     FILE 'COMPENDEX' ENTERED AT 12:10:11 ON 22 JUN 2005
L70            4 SEA ABB=ON  PLU=ON  L68 AND (METAL? OR POLYMER? OR
                 CERAMIC? OR GRAPHIT?)
                 D TRIAL
                 D TRIAL 2-3

     FILE 'JAPIO' ENTERED AT 12:11:18 ON 22 JUN 2005
L71            9 SEA ABB=ON  PLU=ON  L68 AND (METAL? OR POLYMER? OR
                 CERAMIC? OR GRAPHIT?)
                 D TRIAL
                 D TRIAL 2-3
                 D TRIAL 5-8
                 D TRIAL 9
                 D L71
L72           10 SEA ABB=ON  PLU=ON  PAINT?(A)BALL#
                 D TRIAL
L73            1 SEA ABB=ON  PLU=ON  L72 AND LUBRIC?
                 D TRIAL
                 D L73
                 D L73 ALL
L74           10 SEA ABB=ON  PLU=ON  L73 OR L71


     FILE 'HCAPLUS, WPIX, COMPENDEX' ENTERED AT 12:27:58 ON 22 JUN 2005
L75           59 DUP REM L65 L69 L70 (1 DUPLICATE REMOVED)

     FILE 'REGISTRY' ENTERED AT 12:28:47 ON 22 JUN 2005

     FILE HCAPLUS

     FILE WPIX
     FILE LAST UPDATED:          21 JUN 2005      <20050621/UP>

     FILE COMPENDEX
     FILE LAST UPDATED: 20 JUN 2005       <20050620/UP>

     FILE JAPIO
     FILE LAST UPDATED: 8 JUN 2005       <20050608/UP>


=> fil hcap
FILE 'HCAPLUS' ENTERED AT 12:29:09 ON 22 JUN 2005

=> d que l65
L3             1 SEA FILE=REGISTRY ABB=ON  PLU=ON  7439-98-7/RN
L4             1 SEA FILE=REGISTRY ABB=ON  PLU=ON  7440-02-0/RN
L5             1 SEA FILE=REGISTRY ABB=ON  PLU=ON  7440-22-4/RN
L6             1 SEA FILE=REGISTRY ABB=ON  PLU=ON  7440-50-8/RN
L7             1 SEA FILE=REGISTRY ABB=ON  PLU=ON  7440-66-6/RN
L8             5 SEA FILE=REGISTRY ABB=ON  PLU=ON  (L3 OR L4 OR L5 OR
                 L6 OR L7)
L11            1 SEA FILE=REGISTRY ABB=ON  PLU=ON  1317-33-5/RN
L12            1 SEA FILE=REGISTRY ABB=ON  PLU=ON  7782-42-5/RN
L13            1 SEA FILE=REGISTRY ABB=ON  PLU=ON  7440-44-0/RN
L15            1 SEA FILE=REGISTRY ABB=ON  PLU=ON  7440-21-3/RN
L16        10193 SEA FILE=REGISTRY ABB=ON  PLU=ON  FLPO/PCT
L17       193324 SEA FILE=REGISTRY ABB=ON  PLU=ON  7439-98-7/CRN
L18       331087 SEA FILE=REGISTRY ABB=ON  PLU=ON  7440-02-0/CRN
L19        43083 SEA FILE=REGISTRY ABB=ON  PLU=ON  7440-22-4/CRN
L20       265771 SEA FILE=REGISTRY ABB=ON  PLU=ON  7440-50-8/CRN
```

L21	97285	SEA FILE=REGISTRY ABB=ON PLU=ON 7440-66-6/CRN
L23	959895	SEA FILE=HCAPLUS ABB=ON PLU=ON L8
L24	176847	SEA FILE=REGISTRY ABB=ON PLU=ON L17 AND AYS/CI
L25	293014	SEA FILE=REGISTRY ABB=ON PLU=ON L18 AND AYS/CI
L26	35359	SEA FILE=REGISTRY ABB=ON PLU=ON L19 AND AYS/CI
L27	202050	SEA FILE=REGISTRY ABB=ON PLU=ON L20 AND AYS/CI
L28	64411	SEA FILE=REGISTRY ABB=ON PLU=ON L21 AND AYS/CI
L29	175641	SEA FILE=HCAPLUS ABB=ON PLU=ON L24
L30	329059	SEA FILE=HCAPLUS ABB=ON PLU=ON L25
L31	34360	SEA FILE=HCAPLUS ABB=ON PLU=ON L26
L32	249534	SEA FILE=HCAPLUS ABB=ON PLU=ON L27
L33	108756	SEA FILE=HCAPLUS ABB=ON PLU=ON L28
L34	1418329	SEA FILE=HCAPLUS ABB=ON PLU=ON L29 OR L30 OR L31 OR L32 OR L33 OR L23
L35	77463	SEA FILE=HCAPLUS ABB=ON PLU=ON L16
L39	10669	SEA FILE=HCAPLUS ABB=ON PLU=ON L11
L40	93838	SEA FILE=HCAPLUS ABB=ON PLU=ON L12
L41	298775	SEA FILE=HCAPLUS ABB=ON PLU=ON L13
L42	414324	SEA FILE=HCAPLUS ABB=ON PLU=ON L15
L43	768393	SEA FILE=HCAPLUS ABB=ON PLU=ON L39 OR L40 OR L41 OR L42
L44	837276	SEA FILE=HCAPLUS ABB=ON PLU=ON L43 OR L35
L45	3	SEA FILE=HCAPLUS ABB=ON PLU=ON L44 AND PAINT(2A)BALL?
L46	118	SEA FILE=HCAPLUS ABB=ON PLU=ON L44 AND PAINT(2A)(BALL? OR PART? OR SURFACE? OR MARK?)
L47	5	SEA FILE=HCAPLUS ABB=ON PLU=ON L46 AND LUBRIC?
L48	7	SEA FILE=HCAPLUS ABB=ON PLU=ON L45 OR L47
L49	1360	SEA FILE=HCAPLUS ABB=ON PLU=ON L44 AND (PAINT? OR COLOR? OR COLOUR? OR DYE? OR PIGMENT?)(2A)(BALL? OR MARK? OR PART? OR SURFACE?)
L50	64	SEA FILE=HCAPLUS ABB=ON PLU=ON L49 AND LUBRIC?
L51	4	SEA FILE=HCAPLUS ABB=ON PLU=ON L50 AND DEV/RL
L52	36	SEA FILE=HCAPLUS ABB=ON PLU=ON PAINT?(A)BALL?
L53	3	SEA FILE=HCAPLUS ABB=ON PLU=ON L52 AND L44
L54	1	SEA FILE=HCAPLUS ABB=ON PLU=ON L52 AND LUBRIC?
L55	2	SEA FILE=HCAPLUS ABB=ON PLU=ON L34 AND PAINT?(2A)BALL#
L58	1574	SEA FILE=HCAPLUS ABB=ON PLU=ON L34 AND SOLID?(A)LUBRIC?
L59	10	SEA FILE=HCAPLUS ABB=ON PLU=ON L58 AND (MARKER? OR PROJECTILE? OR GUN? OR (MOVING? OR OPERAT?)(A)(PART? OR BALL#))
L60	103566	SEA FILE=HCAPLUS ABB=ON PLU=ON POLYSILIC? OR POLYSILOX? OR POLYSILIC? OR (SILIC? OR SILAN? OR SILOX? OR SI)(A)(POLYMER? OR COPOLYMER OR HOMOPOLYMER?)
L61	89	SEA FILE=HCAPLUS ABB=ON PLU=ON L60 AND SOLID(A)LUBRIC?
L62	1	SEA FILE=HCAPLUS ABB=ON PLU=ON L61 AND (MARKER? OR PROJECTILE? OR GUN? OR (MOVING? OR OPERAT?)(A)(PART? OR BALL#))
L63	3146	SEA FILE=HCAPLUS ABB=ON PLU=ON L44 AND SOLID?(A)LUBRIC?
L64	13	SEA FILE=HCAPLUS ABB=ON PLU=ON L63 AND (MARKER? OR PROJECTILE? OR GUN? OR (MOVING? OPERATING?)(A)(PART? OR BALL# OR SPHER?))
L65	27	SEA FILE=HCAPLUS ABB=ON PLU=ON L48 OR L51 OR L53 OR L54 OR L55 OR L59 OR L62 OR L64

```
=> fil wpix
FILE 'WPIX' ENTERED AT 12:29:21 ON 22 JUN 2005

=> d que l69
L67         4400 SEA FILE=WPIX ABB=ON  PLU=ON  SOLID?(A)LUBRIC?
L68           45 SEA FILE=WPIX ABB=ON  PLU=ON  L67 AND (MARKER? OR
                 PROJECTILE? OR GUN? OR (MOVING? OR OPERATING?)(A)(PART?
                  OR BALL# OR SPHER?))
L69           29 SEA FILE=WPIX ABB=ON  PLU=ON  L68 AND (METAL? OR
                 POLYMER? OR CERAMIC? OR GRAPHIT?)


=> fil compendex
FILE 'COMPENDEX' ENTERED AT 12:29:37 ON 22 JUN 2005

=> d que l70
L67         4400 SEA FILE=WPIX ABB=ON  PLU=ON  SOLID?(A)LUBRIC?
L68           45 SEA FILE=WPIX ABB=ON  PLU=ON  L67 AND (MARKER? OR
                 PROJECTILE? OR GUN? OR (MOVING? OR OPERATING?)(A)(PART?
                  OR BALL# OR SPHER?))
L70            4 SEA FILE=COMPENDEX ABB=ON  PLU=ON  L68 AND (METAL? OR
                 POLYMER? OR CERAMIC? OR GRAPHIT?)


=> fil japio
FILE 'JAPIO' ENTERED AT 12:29:52 ON 22 JUN 2005

=> d que l74
L67         4400 SEA FILE=WPIX ABB=ON  PLU=ON  SOLID?(A)LUBRIC?
L68           45 SEA FILE=WPIX ABB=ON  PLU=ON  L67 AND (MARKER? OR
                 PROJECTILE? OR GUN? OR (MOVING? OR OPERATING?)(A)(PART?
                  OR BALL# OR SPHER?))
L71            9 SEA FILE=JAPIO ABB=ON  PLU=ON  L68 AND (METAL? OR
                 POLYMER? OR CERAMIC? OR GRAPHIT?)
L72           10 SEA FILE=JAPIO ABB=ON  PLU=ON  PAINT?(A)BALL#
L73            1 SEA FILE=JAPIO ABB=ON  PLU=ON  L72 AND LUBRIC?
L74           10 SEA FILE=JAPIO ABB=ON  PLU=ON  L73 OR L71


=> d l74 1-10 ti

L74  ANSWER 1 OF 10  JAPIO  (C) 2005 JPO  on STN
TI   SELF-LUBRICITY COMPOSITE POWDER AND METHOD FOR MANUFACTURING THE
     SAME

L74  ANSWER 2 OF 10  JAPIO  (C) 2005 JPO  on STN
TI   PRODUCTION METHOD OF ELECTROPHOTOGRAPHIC MEMBER AND
     ELECTROPHOTOGRAPHIC MEMBER PRODUCED BY THE METHOD

L74  ANSWER 3 OF 10  JAPIO  (C) 2005 JPO  on STN
TI   MANUFACTURE OF SLIDE MEMBER AND SLIDE MEMBER

L74  ANSWER 4 OF 10  JAPIO  (C) 2005 JPO  on STN
TI   OIL BASE INK COMPOSITION AND OIL BASE BALL POINT PEN

L74  ANSWER 5 OF 10  JAPIO  (C) 2005 JPO  on STN
TI   PRODUCTION OF DEVELOPER CARRYING MEMBER

L74  ANSWER 6 OF 10  JAPIO  (C) 2005 JPO  on STN
```

TI COMPOSITE MATERIAL WITH SLIDING PROPERTY AND MANUFACTURE THEREOF

L74 ANSWER 7 OF 10 JAPIO (C) 2005 JPO on STN
TI EXTRUSION TOOL AND ITS MANUFACTURE

L74 ANSWER 8 OF 10 JAPIO (C) 2005 JPO on STN
TI HOLDER FOR CUTTING TOOL UNIT

L74 ANSWER 9 OF 10 JAPIO (C) 2005 JPO on STN
TI FORMATION OF MELT-SPRAY COATING

L74 ANSWER 10 OF 10 JAPIO (C) 2005 JPO on STN
TI METHOD FOR BONDING PART TO FORMED PRODUCT

=> fil hcap wpix compendex
FILE 'HCAPLUS' ENTERED AT 12:30:24 ON 22 JUN 2005

=> d l75 1-59 all

L75 ANSWER 1 OF 59 HCAPLUS COPYRIGHT 2005 ACS on STN DUPLICATE 1
AN 2004:759640 HCAPLUS
DN 141:263128
ED Entered STN: 17 Sep 2004
TI **Paint ball gun** having permanent **lubricated** surfaces
IN Gilbertson, Jonathan G.; Gilbertson, Stephen M.
PA USA
SO U.S. Pat. Appl. Publ., 8 pp.
CODEN: USXXCO
DT Patent
LA English
IC ICM B05D005-00
INCL 427256000; 427421100
CC 51-8 (Fossil Fuels, Derivatives, and Related Products)
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI US 2004180143	A1	20040916	US 2004-799249	2004 0312
PRAI US 2003-453990P	P	20030312		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
US 2004180143	ICM	B05D005-00
	INCL	427256000; 427421100
US 2004180143	NCL	427/256.000; 427/421.100
	ECLA	B05D005/08; C10M125/02; C10M125/18; C10M125/20; C10M125/22; C10M125/30; C10M147/02; C23C008/80; C23C030/00; F16N015/02; F41A029/00; F41A029/04; F41B011/00

AB The performance of a **paint ball marker** is improved by applying a permanent **lubricating** agent to selected working parts of the **marker** in place of petroleum-based **lubricants** using known processes for applying metals, ceramics, graphite and various polymers to such working parts.

ST permanent **lubricant paint ball gun**
IT Ceramics
(coating; **paint ball gun** having permanent **lubricated** surfaces)
IT Metals, uses
Polymers, uses
(coating; **paint ball gun** having permanent **lubricated** surfaces)
IT Fluoropolymers, uses
Polysiloxanes, uses
Siloxanes (nonpolymeric)
(**paint ball gun** having permanent **lubricated** surfaces)
IT Sporting goods
(**paint ball guns**; **paint ball gun** having permanent **lubricated** surfaces)
IT **Lubricants**
(**solid**; **paint ball gun** having permanent **lubricated** surfaces)
IT Copper alloy, base
Molybdenum alloy, base
Nickel alloy, base
Silver alloy, base
Zinc alloy, base
(**paint ball gun** having permanent **lubricated** surfaces)
IT **7782-42-5**, Graphite, uses
(coating; **paint ball gun** having permanent **lubricated** surfaces)
IT **1317-33-5**, Molybdenum disulfide, uses **7439-98-7**, Molybdenum, uses **7440-02-0**, Nickel, uses **7440-22-4**, Silver, uses **7440-44-0**, Carbon, uses **7440-50-8**, Copper, uses **7440-66-6**, Zinc, uses **9002-84-0**, Polytetrafluoroethylene 9002-88-4, Polyethylene
(**paint ball gun** having permanent **lubricated** surfaces)
IT 12674-07-6, Zincate
(**paint ball gun** having permanent **lubricated** surfaces)
IT 7429-90-5, Aluminum, uses
(**surface**; **paint ball gun** having permanent **lubricated** surfaces)

L75 ANSWER 2 OF 59 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2004:1035468 HCAPLUS
DN 142:30083
ED Entered STN: 03 Dec 2004
TI Thermal printing material with protective layer and printing method
IN Takeuchi, Akira
PA Fuji Photo Film Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 33 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM B41M005-26
CC 74-7 (Radiation Chemistry, Photochemistry, and Photographic and

Other Reprographic Processes)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2004338360	A2	20041202	JP 2003-192761	2003 0707
PRAI	JP 2003-69410	A	20030314		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
JP 2004338360	ICM	B41M005-26
JP 2004338360	FTERM	2H026/AA07; 2H026/DD07; 2H026/DD31; 2H026/DD34; 2H026/DD48; 2H026/DD55; 2H026/DD58; 2H026/EE05

AB The material comprises a support coated with (A) a heat-sensitive layer and (B) a protective layer containing **pigment** and having **surface** stiffness ≥40 g (based on JIS K 6718). The material is printed by thermal head with uppermost layer containing C at ≥90 weight%. The material shows good head matching property, gives high quality images without protective layer damage and printer stain.

ST thermal printing material protective layer stiffness; **lubricant** protective layer thermal printing material; carbon content thermal printer head

IT Polysiloxanes, uses
(carboxy-containing, BY 22-840, **lubricant**; thermal printing material with surface stiffness-controlled protective layer containing **lubricant**)

IT Castor oil
(hydrogenated, K 3 Wax 500, **lubricant**; thermal printing material with surface stiffness-controlled protective layer containing **lubricant**)

IT Thermal printers
(thermal printer using carbon-rich thermal head)

IT **Lubricants**
Thermal printing materials
(thermal printing material with surface stiffness-controlled protective layer containing **lubricant**)

IT 557-05-1, F 115
(F 115, **lubricant**; thermal printing material with surface stiffness-controlled protective layer containing **lubricant**)

IT 57-11-4, Selosol 920, uses
(**lubricant**; thermal printing material with surface stiffness-controlled protective layer)

IT 124-26-5, Stearic acid amide 67167-26-4, Plysurf A 217E
(**lubricant**; thermal printing material with surface stiffness-controlled protective layer containing **lubricant**)

IT **7440-44-0**, Carbon, uses
(thermal printer using carbon-rich thermal head)

IT 139-44-6
(thermal printing material with surface stiffness-controlled protective layer containing **lubricant**)

IT 21645-51-2, Higilite H 42S, uses
(thermal printing material with surface stiffness-controlled protective layer containing **lubricant**)

L75 ANSWER 3 OF 59 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 2003:319436 HCAPLUS
DN 138:323513
ED Entered STN: 25 Apr 2003
TI Conditioning compositions for bullets and firearms containing **solid lubricants** in alkyd and acrylic resin binders
IN Brown, David Thomas
PA USA
SO U.S. Pat. Appl. Publ., 19 pp.
CODEN: USXXCO
DT Patent
LA English
IC ICM C10M125-00
ICS F42B014-00
INCL 508115000; 508116000; 508148000; 508155000; 508165000; 508167000; 508169000; 508219000; 086019000; 102448000
CC 50-8 (Propellants and Explosives)
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2003078170	A1	20030424	US 2001-934600	2001 0822
US 6576598	B2	20030610		

PRAI US 2001-934600 20010822

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
US 2003078170	ICM	C10M125-00
	ICS	F42B014-00
	INCL	508115000; 508116000; 508148000; 508155000; 508165000; 508167000; 508169000; 508219000; 086019000; 102448000
US 2003078170	NCL	508/118.000; 042/076.020; 086/019.000; 102/448.000; 102/511.000; 508/115.000; 508/116.000; 508/148.000; 508/155.000; 508/165.000; 508/167.000; 508/169.000; 508/219.000
	ECLA	C10M111/04; C10M169/04F; C10M171/00E; F41A021/04; F41A021/22; F41A029/04; F42B012/82

AB A conditioning composition for conditioning of firearms, firearm **projectiles**, and firearm components (e.g., barrel bores), to ensure smooth **gun** operation, containing of: (1) a powder consisting of >90 weight% of a **solid lubricant** such as tungsten disulfide, antimony trioxide, graphite, mica, talc, and hexagonal boron nitride, and <10 weight% of a second compatible compound, (2) a volatile solvent, and (3) a binder selected from quick-drying cellulose resins, alkyd resins, and acrylic resins. The conditioning composition can be applied as an aerosol spray, as an air brush, air spraying or air-assisted spraying, or a spray pumper, in which the bullets are heated to 27-66° prior to spraying.

ST spray application ballistic conditioning **gun** barrel; **solid lubricant** ballistic conditioning **gun** barrel; alkyd resin ballistic conditioning **gun** barrel; graphite ballistic conditioning aerosol spray **gun** barrel

IT **Guns** (weapons)
(barrels; conditioning compns. for bullets and firearms containing

solid lubricants in alkyd and acrylic resin binder)

IT Shellac
(binder; conditioning compns. for bullets and firearms containing **solid lubricants** in alkyd and acrylic resin binder)

IT Acrylic polymers, uses
Alkyd resins
(binders; conditioning compns. for bullets and firearms containing **solid lubricants** in alkyd and acrylic resin binder)

IT **Projectiles**
(bullets; conditioning compns. for bullets and firearms containing **solid lubricants** in alkyd and acrylic resin binder)

IT Mica-group minerals, uses
(lubricant; conditioning compns. for bullets and firearms containing **solid lubricants** in alkyd and acrylic resin binder)

IT **Lubricants**
(**solid**; conditioning compns. for bullets and firearms containing **solid lubricants** in alkyd and acrylic resin binder)

IT Fatty acids, uses
(tall-oil; conditioning compns. for bullets and firearms containing **solid lubricants** in alkyd and acrylic resin binder)

IT 9004-70-0, Cellulose nitrate
(PD 14P, binder; conditioning compns. for bullets and firearms containing **solid lubricants** in alkyd and acrylic resin binder)

IT 111-15-9, Poly-Solv EE acetate 9003-63-8, Elvacite 2044 9004-35-7, Cellulose acetate 9004-36-8, Cellulose acetate butyrate 9015-12-7, Cellulose butyrate 25608-33-7, Elvacite 6016 53468-66-9, Elvacite 6014
(binder; conditioning compns. for bullets and firearms containing **solid lubricants** in alkyd and acrylic resin binder)

IT 9004-34-6D, Cellulose, derivs. 9004-57-3, Ethyl cellulose
(binders; conditioning compns. for bullets and firearms containing **solid lubricants** in alkyd and acrylic resin binder)

IT 67-63-0, Isopropanol, uses 67-64-1, Acetone, uses 71-23-8, Propanol, uses 85-44-9, Phthalic anhydride 85-68-7, Santicizer 160 107-70-0, Pentoxone 108-10-1, Methyl isobutyl ketone 115-77-5, Pentaerythritol, uses
(conditioning compns. for bullets and firearms containing **solid lubricants** in alkyd and acrylic resin binder)

IT 1309-64-4, Antimony trioxide, uses **7782-42-5**, Graphite, uses 10043-11-5, Boron nitride, uses 12138-09-9, Tungsten disulfide 14807-96-6, Talc, uses
(lubricant; conditioning compns. for bullets and firearms containing **solid lubricants** in alkyd and acrylic resin binder)

IT 71-36-3, Butanol, uses 84-74-2, Dibutyl phthalate 108-88-3, Toluene, uses 123-86-4, Butyl acetate 141-78-6, Ethyl acetate, uses 1330-20-7, Xylene, uses
(solvent; conditioning compns. for bullets and firearms containing **solid lubricants** in alkyd and acrylic resin

binder)

L75 ANSWER 4 OF 59 WPIX COPYRIGHT 2005 THE THOMSON CORP on STN
AN 2003-569634 [53] WPIX
DNN N2003-452942 DNC C2003-153822
TI Formation of abradable barrier coating for shroud segments in aerospace or gas turbine components, involves the application of powder that is free of organic fugitive materials to substrate using combustion spray **gun.**
DC M13 P42 P53
IN DORFMAN, M R; MALLON, J; SCHMID, R K
PA (DORF-I) DORFMAN M R; (MALL-I) MALLON J; (SCHM-I) SCHMID R K; (SULZ) SULZER METCO US INC
CYC 102
PI WO 2003059529 A1 20030724 (200353)* EN 24 B05C005-05
RW: AT BE BG CH CY CZ DE DK EA EE ES FI FR GB GH GM GR HU IE IT KE LS LU MC MW MZ NL OA PT SD SE SI SK SL SZ TR TZ UG ZM ZW
W: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ OM PH PL PT RO RU SC SD SE SG SK SL TJ TM TN TR TT TZ UA UG UZ VC VN YU ZA ZM ZW
US 2004005452 A1 20040108 (200404) B32B005-16
AU 2003207560 A1 20030730 (200421) B22F005-04
ADT WO 2003059529 A1 WO 2003-US1124 20030114; US 2004005452 A1 Provisional US 2002-348484P 20020114, US 2003-341912 20030114; AU 2003207560 A1 AU 2003-207560 20030114
FDT AU 2003207560 A1 Based on WO 2003059529
PRAI US 2002-348484P 20020114; US 2003-341912 20030114
IC ICM B05C005-05; B22F005-04; B32B005-16
ICS B05D001-08; C23C004-00; C23C004-06; C23C004-066
AB WO2003059529 A UPAB: 20030820
NOVELTY - Abradable barrier coating is formed by providing a powder comprising **metal**, intermetallic compound or oxidation alloy with chromium-aluminum-yttrium, and a **solid lubricant**; and applying the powder to a substrate using a combustion spray **gun.** The powder is free of organic fugitive materials.

DETAILED DESCRIPTION - An abradable barrier coating is formed by providing a powder comprising M-CrAlY and a **solid lubricant**, and applying the powder to a substrate using a combustion spray **gun.** The powder is free of organic fugitive materials.

M = **metal** such as Ni, Co or Fe, intermetallic compound, such as FeAl3, NiAl or Ni3Al, or oxidation alloy such as Fe (stainless steel), Ni (Ni-Cr, NiCrAl, NiAl), or Co (Co-Al, Co-Cr, or Co-Cr-Al), preferably CoNi.

An INDEPENDENT CLAIM is also included for a system for applying an abradable barrier coating comprising a combustion spray **gun**, and a spray powder reservoir connected to the **gun.**

USE - For forming an abradable barrier coating (claimed) used in shroud segments in aerospace or gas turbine components.

ADVANTAGE - Provides an improved quality of a M-CrAlY abradable coating along with reduced cost and application time due to increased application efficiency and the elimination of post-application heat treatment.

DESCRIPTION OF DRAWING(S) - The figures show cross-sectional photomicrographs abradable coatings.
Dwg.1/3

FS CPI GMPI
FA AB; GI
MC CPI: M13-C; M13-M

L75 ANSWER 5 OF 59 WPIX COPYRIGHT 2005 THE THOMSON CORP on STN
AN 2004-366923 [35] WPIX
DNN N2004-293449 DNC C2004-138757
TI Brush seal for gas turbine engine, has two wire fluxes made of dissimilar materials that are arranged in recess of brush support installed in fixing component at multiple areas, so that tip of wire flux extends into movable units.
DC A88 Q51 Q52 Q65
PA (TOKE) TOSHIBA KK
CYC 1
PI JP 2003307274 A 20031031 (200435)* 8 F16J015-22
ADT JP 2003307274 A JP 2002-112334 20020415
PRAI JP 2002-112334 20020415
IC ICM F16J015-22
ICS F01D011-00; F02C007-00; F02C007-28; F16J015-16
AB JP2003307274 A UPAB: 20040603
NOVELTY - A brush support consists of side plates (1b,1c) provided on sides of a base (1a) forming a recess between the side plates. The brush seal consisting of two wire fluxes made of dissimilar materials is arranged on the recess at multiple areas, such that the side plates face low and high pressure regions. The tip of the two wire fluxes extends into movable units from the recess of the brush support.
USE - For sealing high-pressure region from low pressure region between fixing component and **moving parts** in rotating machines such as gas turbine engine.
ADVANTAGE - Enables to seal high-pressure region from low pressure region at high performance rate.
DESCRIPTION OF DRAWING(S) - The figure shows a front view and the perspective diagram of the brush seal. (Drawing includes non-English language text).
Brush support 1
Base 1a
Side plate 1b,1c
Wire flux 2,3
Dwg.1/4
FS CPI GMPI
FA AB; GI
MC CPI: A12-H08

L75 ANSWER 6 OF 59 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2003:659405 HCAPLUS
DN 140:221277
ED Entered STN: 24 Aug 2003
TI Ag/graphite tribological coatings prepared by plasma electrode type spray **gun**
AU Fukumasa, O.; Osaki, K.; Fujimoto, S.; Lungu, C. P.; Lungu, Ana Mihaela
CS Department of Electrical and Electronic Engineering, Faculty of Engineering, Yamaguchi University, Ube, Japan
SO Romanian Reports in Physics (2003), Volume Date 2002, 54(6-10), 471-479
CODEN: RORPED; ISSN: 1221-1451
PB Editura Academiei Romane
DT Journal
LA English

CC 56-4 (Nonferrous Metals and Alloys)
Section cross-reference(s): 57
AB Tribol. coatings for **solid lubrication** and wear improvement of automobile plain bearings were prepared using a new type of reactor based on the forced constricted type plasma jet generator. Optical emission spectroscopy (OES) and video recording of the plasma jet were powerful tools in monitoring the conditions of thermal plasma to control the process. The overlays were deposited on steel-bronze substrates used for typical journal bearing fabrication. The duration of the process was 1 min and spraying distances were from 3 cm to 7 cm. Thickness of the coatings were from 20 μm to 100 μm. X-ray diffraction (XRD) anal. of the films showed that the graphite phase was preserved into the overlays. The coefficient of friction of the Ag/graphite overlay was reduced by a factor of five compared with that of bronze that was used as the substrate, measured using a ball-on-disk tribometer in dry sliding.
ST silver graphite coating friction coeff wear bearing; bronze bearing silver graphite coating tribol; steel bearing silver graphite coating tribol
IT Coating materials
(abrasion-resistant; friction coefficient of Ag/graphite tribol. coatings prepared by plasma electrode type spray **gun** on steel and bronze bearing substrates)
IT Friction
(coefficient of; friction coefficient of Ag/graphite tribol. coatings prepared by plasma electrode type spray **gun** on steel and bronze bearing substrates)
IT Bearings
Metal matrix composites
(friction coefficient of Ag/graphite tribol. coatings prepared by plasma electrode type spray **gun** on steel and bronze bearing substrates)
IT 12597-69-2, Steel, processes 12597-70-5, Bronze
(friction coefficient of Ag/graphite tribol. coatings prepared by plasma electrode type spray **gun** on steel and bronze bearing substrates)
IT **666701-78-6**, Graphite 20, silver 80
(friction coefficient of Ag/graphite tribol. coatings prepared by plasma electrode type spray **gun** on steel and bronze bearing substrates)
RE.CNT 11 THERE ARE 11 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Anon; http://physics.nist.gov/PhysRefData/ASDl
(2) Bangert, H; Surf Coat Technol 1996, V80, P162 HCAPLUS
(3) Ferugier, P; Plasma Chemistry and Plasma Processing 2000, V20, P65
(4) Fukumasa, O; Oyo Butsuri 1998, V67, P181 HCAPLUS
(5) Fukumasa, O; Thin Solid Films 2001, V390, P39
(6) Grunthaler, K; SAE Technical Paper Series No 960984 1996, P1
(7) Ishikawa, H; SAE Technical Paper Series No 960988 1996, P1 HCAPLUS
(8) Lungu, C; J of IAPS 2000, V8, P65 HCAPLUS
(9) Osaki, K; Proc 12th Symp on Plasma Sci for Mat 1999, P53
(10) Osaki, K; Proc 1st Int Symp on Appl Plasma Science 1997, P61 HCAPLUS
(11) Savan, A; Surface Coatings Tech 2000, V126, P159 HCAPLUS

L75 ANSWER 7 OF 59 WPIX COPYRIGHT 2005 THE THOMSON CORP on STN
AN 2002-409470 [44] WPIX
DNN N2002-321781 DNC C2002-115554
TI Wear-resistant lubricant film for covering members and tools for

anti-friction and cutting, has rigid film dotted with concave portions having specific depth to thickness ratio and filled with **solid lubricant.**

DC A97 H07 M13 P54
PA (TTUN) TOSHIBA TUNGALOY KK
CYC 1
PI JP 2002038255 A 20020206 (200244)* 7 C23C014-06
ADT JP 2002038255 A JP 2000-226254 20000727
PRAI JP 2000-226254 20000727
IC ICM C23C014-06
ICA B23B027-14; B23B051-00; B23C005-16
AB JP2002038255 A UPAB: 20020711
NOVELTY - A wear-resistant lubricant film has a rigid film comprising mono-layer of 1-20 microns m thickness or multi-layer. The rigid film surface is dotted with concave portions which are filled with a **solid lubricant.** The size ratio of the opening surface w.r.t the surface area of 1-100 microns m, is 0.0.5-0.40 and the ratio of the depth to the film thickness is 0.3 or more.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for a covering member comprising a wear-resistant lubricant film, formed on a base material comprising cemented carbide, cermet, **ceramics**, cubic boron nitride sintered compact and/or rigid steel.

USE - For covering members or **moving parts** such as tools for anti-friction and cutting, chips, drills, **metallic** molds, cutting blades, liners and bearing brushes.

ADVANTAGE - The wear-resistant lubricant film has good welding resistance, oxidation resistance, durability and lubricity. Reduction of lubricant property by wear is prevented.

Dwg.0/0
FS CPI GMPI
FA AB
MC CPI: A12-W02; H07-A; M13-K01

L75 ANSWER 8 OF 59 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2002:712093 HCAPLUS
DN 137:328288
ED Entered STN: 19 Sep 2002
TI Structural and tribological properties of TiC/C/Ag coatings in vacuum and ambient environments
AU Endrino, Jose L.; Nainaparampil, Jose J.; Krzanowski, James E.
CS Mechanical Engineering Department, University of New Hampshire, Durham, NH, 03824, USA
SO Materials Research Society Symposium Proceedings (2002), 697(Surface Engineering 2001), 273-278
CODEN: MRSPDH; ISSN: 0272-9172
PB Materials Research Society
DT Journal
LA English
CC 57-2 (Ceramics)
Section cross-reference(s): 56
AB TiC/C/Ag coatings were deposited by magnetron sputtering pulsed laser deposition (MSPLD) combining sputtering from a custom made Ti-Ag (60:40) target with the ablation of carbon. Energy disperse spectroscopy (EDS) was used to determine the elemental composition, and x-ray diffraction (XRD) and cross-sectional SEM (XSEM) to examine the structure of the films. Hardness and reduced modulus measurements were acquired using a nanoindentation technique. The

pin-on-disk friction test was used to study the friction behavior of the deposited samples in high vacuum and ambient conditions. Variations in the laser energy and the power of the sputtering **gun** yielded a set of samples with carbon content that ranged from 15.0 tc 95.6%. The hardest samples with the highest reduced modulus were those with a moderate carbon content and that were shown to form a titanium carbide phase. Tribol. results indicated that there is an optimum composition of a TiC/C/Ag coating (.apprx.25 atomic% carbon) for which it can be reversible and provide lubrication in both ambient and vacuum.

ST titanium carbide carbon silver film structure tribol mech property

IT Coating materials
(abrasion-resistant, titanium carbide-carbon-silver; combined magnetron sputtering-pulsed laser deposition preparation and mech., structural and tribol. properties of TiC/C/Ag coatings in vacuum and ambient environments)

IT Friction
Hardness (mechanical)
Lubrication
Young's modulus
(combined magnetron sputtering-pulsed laser deposition preparation and mech., structural and tribol. properties of TiC/C/Ag coatings in vacuum and ambient environments)

IT Magnetron sputtering
(combined process; combined magnetron sputtering-pulsed laser deposition preparation and mech., structural and tribol. properties of TiC/C/Ag coatings in vacuum and ambient environments)

IT Vapor deposition process
(laser ablation, combined process; combined magnetron sputtering-pulsed laser deposition preparation and mech., structural and tribol. properties of TiC/C/Ag coatings in vacuum and ambient environments)

IT **Lubricants**
(**solid**, titanium carbide-carbon-silver films; combined magnetron sputtering-pulsed laser deposition preparation and mech., structural and tribol. properties of TiC/C/Ag coatings in vacuum and ambient environments)

IT **7440-22-4P**, Silver, preparation
(composites with TiC and carbon, films; combined magnetron sputtering-pulsed laser deposition preparation and mech., structural and tribol. properties of TiC/C/Ag coatings in vacuum and ambient environments)

IT **7440-44-0P**, Carbon, preparation
(composites with TiC and silver, films; combined magnetron sputtering-pulsed laser deposition preparation and mech., structural and tribol. properties of TiC/C/Ag coatings in vacuum and ambient environments)

IT 12070-08-5P, Titanium carbide (TiC)
(composites with carbon and silver, films; combined magnetron sputtering-pulsed laser deposition preparation and mech., structural and tribol. properties of TiC/C/Ag coatings in vacuum and ambient environments)

RE.CNT 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

(1) Christy, R; American Vacuum Society Series V7, P66
(2) Dellacorte, C; NASA technical memorandum 1988, V100783
(3) Endrino, J; submitted to Surface and Coatings Technology 2001
(4) Endrino, J; submitted to Vacuum 2001
(5) Erdemir, A; Lubrication Engineering 1988, V26, P23
(6) Jahanmir, S; Wear 1976, V40, P75 HCAPLUS

(7) Phani, A; unpublished research
(8) Voevodin, A; Tribology International 1996, V29, P559 HCAPLUS

L75 ANSWER 9 OF 59 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2001:598271 HCAPLUS
DN 135:182721
ED Entered STN: 17 Aug 2001
TI Powder metallurgy for fabrication of lead-free frangible bullets and **projectiles** for practice and training shooting ranges
IN Abrams, John T.; Nadkarni, Anil V.
PA Delta Frangible Ammunition, L.L.C., USA
SO PCT Int. Appl., 28 pp.
CODEN: PIXXD2
DT Patent
LA English
IC ICM F42B008-14
ICS F42B012-74; C22C001-04
CC 50-2 (Propellants and Explosives)
Section cross-reference(s): 56
FAN.CNT 3

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI WO 2001059399	A1	20010816	WO 2001-US4462	2001 0209
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
US 6536352	B1	20030325	US 2000-569060	2000 0510

PRAI US 2000-181267P	P	20000209	
US 2000-569060	A	20000510	
US 1996-678776	A2	19960711	

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
WO 2001059399	ICM	F42B008-14
	ICS	F42B012-74; C22C001-04
WO 2001059399	ECLA	B22F001/00A; F42B012/74
US 6536352	NCL	102/506.000; 102/517.000
	ECLA	B22F001/00A; C22C001/04C; C22C032/00; F42B012/74

AB Lead-free frangible bullets or **projectiles**, especially suitable for use in practice or training shooting ranges, comprise a compact of lead-free metal powder particles bonded together with a lead-free binder metal, in which the metal powder has a higher m.p. and the binder metal has a lower m.p., and in which the powder particles are bonded by the binder wetting the powder particles. The binder metal powder is selected from the group

consisting of Sn, Zn, Bi, In (and their alloys), and the matrix (first) metal powder is selected from Cu, Fe, steel, Ni, Co, W, Mo (and their alloys), such as prealloyed brass or bronze powders. The bullets or **projectiles** are prepared by powder metallurgy techniques (e.g., compaction at 50-120 psi and heating at 300-900°F) such that a brittle bond is created between the matrix powder and the binder.

ST lead free frangible bullet ammunition **projectile**; powder metallurgy lead free frangible bullet; brass lead free frangible bullet; bronze lead free frangible bullet

IT **Projectiles**
(bullets; powder metallurgy for fabrication of lead-free frangible bullets and **projectiles** for practice and training shooting ranges)

IT Powder metallurgy
(powder metallurgy for fabrication of lead-free frangible bullets and **projectiles** for practice and training shooting ranges)

IT **Lubricants**
(**solid**, Acrawax C; powder metallurgy for fabrication of lead-free frangible bullets and **projectiles** for practice and training shooting ranges)

IT Bismuth alloy, base
Cobalt alloy, base
Copper alloy, base
Indium alloy, base
Iron alloy, base
Molybdenum alloy, base
Tin alloy, base
Tungsten alloy, base
Zinc alloy, base
(powder metallurgy for fabrication of lead-free frangible bullets and **projectiles** for practice and training shooting ranges)

IT **12621-71-5**
(bullets from; powder metallurgy for fabrication of lead-free frangible bullets and **projectiles** for practice and training shooting ranges)

IT 110-30-5, Acrawax C
(compacting lubricant; powder metallurgy for fabrication of lead-free frangible bullets and **projectiles** for practice and training shooting ranges)

IT **7440-50-8**, 100RXH, uses
(powdered, 100RXH, alloying of; powder metallurgy for fabrication of lead-free frangible bullets and **projectiles** for practice and training shooting ranges)

IT 7439-89-6, Iron, uses **7439-98-7**, Molybdenum, uses 7440-31-5, Tin, uses 7440-33-7, Tungsten, uses 7440-48-4, Cobalt, uses **7440-66-6**, Zinc, uses 7440-69-9, Bismuth, uses 7440-74-6, Indium, uses 12597-69-2, steel, uses 12597-70-5, bronze 12597-71-6, brass, uses **355132-67-1**
(powdered, alloying of; powder metallurgy for fabrication of lead-free frangible bullets and **projectiles** for practice and training shooting ranges)

RE.CNT 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

(1) Amick; US 5527376 A 1996 HCAPLUS
(2) Hayward; US 4949645 A 1990
(3) Mravic; US 5399187 A 1995
(4) Oltrogge; US 5279787 A 1994

L75 ANSWER 10 OF 59 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2001:833907 HCAPLUS
DN 136:249753
ED Entered STN: 16 Nov 2001
TI Fabrication of Mo based thermal spray composite powder by self-propagating high-temperature synthesis
AU Park, Jeshin; Shim, Gunchoo
CS Korea Institute of Geoscience, Mining and Materials, Taejoen, 305-350, S. Korea
SO Han'guk Chaelyo Hakhoechi (2001), 11(9), 763-768
CODEN: HCHAEU; ISSN: 1225-0562
PB Materials Research Society of Korea
DT Journal
LA Korean
CC 49-8 (Industrial Inorganic Chemicals)
Section cross-reference(s): 51
AB Molybdenum-based thermally sprayed composite powder, widely used for coating the **moving parts** of the internal combustion engines due to its excellent wear resistance. was prepared by a SHS (self-propagating high-temperature synthesis) method, and had a formula Mo40(Al1-xSix)60. The synthesized bulk was pulverized and specially treated to produce thermal spray powder; the synthesis reaction consisted of two-steps: the formation of Al8Mo3 and the formation of Mo(Al,Si)2. Both the temperature and the rate of the SHS reaction linearly increased with the increase of the value of x in Mo40(Al1-xSix)60. The temperature and the rate of the reaction were also affected by the compacting d. of the specimens, exhibiting the maximum values at 62% and 60%. resp. Since a spherical shape is advantageous in the thermal spraying process, shape-control of the powder was attempted with PVA as a binding additive, resulting in the successful production of almost perfectly spherical powder of 80 μmΦ(d50) mean particle size.
ST thermal spray coating molybdenum lubricant coating; molybdenum aluminum silicon lubricant spray coating; selfpropagating high temp synthesis molybdenum aluminum silicon coating
IT Combustion synthesis
(preparation of Mo-based thermal spray composite powder by self-propagating high-temperature synthesis for spray coating of lubricants)
IT **Lubricants**
(**solid**, spray-coated; preparation of Mo-based thermal spray composite powder by self-propagating high-temperature synthesis for spray coating of lubricants)
IT Coating process
(thermal spraying; preparation of Mo-based thermal spray composite powder by self-propagating high-temperature synthesis for spray coating of lubricants)
IT 9003-20-7, Poly(vinyl acetate)
(binder; preparation of Mo-based thermal spray composite powder by self-propagating high-temperature synthesis for spray coating of lubricants)
IT **403980-74-5P 403980-75-6P 403980-76-7P**
403980-77-8P 403980-78-9P 403980-84-7P
(coating; preparation of Mo-based thermal spray composite powder by self-propagating high-temperature synthesis for spray coating of lubricants)
IT **133274-98-3**
(intermediate, formation and combustion of; preparation of Mo-based thermal spray composite powder by self-propagating high-temperature

synthesis for spray coating of lubricants)
IT **403980-79-0P**
(preparation of Mo-based thermal spray composite powder by self-propagating high-temperature synthesis for spray coating of lubricants)

L75 ANSWER 11 OF 59 WPIX COPYRIGHT 2005 THE THOMSON CORP on STN
AN 2000-547152 [50] WPIX
DNN N2000-405006 DNC C2000-163155
TI **Solid lubricant** for lubricating **metallic** materials during rolling has specified degree of needle and desired transverse resistance.
DC H07 M21 P51 P52
PA (YAWA) NIPPON STEEL CORP
CYC 1
PI JP 2000230183 A 20000822 (200050)* 4 C10M107-00
ADT JP 2000230183 A JP 1999-34489 19990212
PRAI JP 1999-34489 19990212
IC ICM C10M107-00
ICS B21B027-10; B21B045-02; C10M109-00
ICA B21J003-00
ICI C10N020:00, C10N040:24, C10N050:08
AB JP2000230183 A UPAB: 20001010
NOVELTY - **Solid lubricant** comprises specified degree of needle (absorption depth of pressurizing piece) according to JISK 7215 (type D durometer hardness test) and desired transverse resistance. The lubricant is coated to rotator and **moving parts** requiring lubrication.
USE - For lubricating **metallic** materials during rolling, drawing and forging.
ADVANTAGE - Transverse resistance of **solid lubricant** is improved. Lubrication during rolling of **metallic** material is completed efficiently, without exhausting the amount of **solid lubricant.** **Solid lubricant** is replenished frequently when coated on **metallic** materials.
Dwg.0/2
FS CPI GMPI
FA AB
MC CPI: H07-D; M21-A06

L75 ANSWER 12 OF 59 WPIX COPYRIGHT 2005 THE THOMSON CORP on STN
AN 2000-604262 [58] WPIX
DNN N2000-447242 DNC C2000-180931
TI Rolling **moving part** for use as rail, nut carries out coating for formation of **solid lubrication** film on the contact surface of companion member.
DC A14 A82 A88 G02 M13 Q62 Q64
PA (KOYS) KOYO SEIKO CO LTD
CYC 1
PI JP 2000170869 A 20000623 (200058)* 5 F16H025-24
ADT JP 2000170869 A JP 1998-349429 19981209
PRAI JP 1998-349429 19981209
IC ICM F16H025-24
ICS C10M147-02; F16C031-04; F16C033-66
ICI C10N020:04, C10N040:02
AB JP2000170869 A UPAB: 20001114
NOVELTY - The rolling **moving part** (1,2) produces rolling contact or sliding contact between companion

members (3). The coating for formation of **solid lubrication** film of **polymeric** type having softening point lower than and decomposition temperature higher than usage environmental temperature is carried out on the contact surface of companion member.

USE - For use as rail, moving body of bearing washer of ball-and-roller bearing, screw axis of feed screw, nut or direct motion type bearing (claimed).

ADVANTAGE - Since the film exists stably without elimination currently formed on the roll site or the slide site for long period of time even when using in a high temperature environment, the lubricity of roll site or slide site can be satisfactorily maintained for long period of time and contribute to the improvement of seizure life span. As the softening point of film is set lower than the usage environment temperature of the rolling **moving part**, the film becomes soft in the early stage and produce favorable lubrication effect. Since the decomposition temperature of the film is set more than the usage environment temperature of rolling part, the film decomposes and does not vaporize. Hence, favorable lubricity is maintained for long period.

DESCRIPTION OF DRAWING(S) - The figure shows cross section of ball screw

Rolling parts 1,2

Companion member 3

Dwg.0/5

FS CPI GMPI

FA AB; GI

MC CPI: A04-E08B; A12-H03; A12-H10; G02-A05; M13-K

L75 ANSWER 13 OF 59 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 1999:34974 HCAPLUS

DN 130:97914

ED Entered STN: 19 Jan 1999

TI Compositions and method for coating and conditioning of firearms **projectiles** and firearms components

IN Brown, David Thomas

PA USA

SO PCT Int. Appl., 62 pp.
CODEN: PIXXD2

DT Patent

LA English

IC ICM C10M111-04
ICS F41A021-22; F42B012-80; F42B005-295; F42B012-82; F42B007-04

CC 51-8 (Fossil Fuels, Derivatives, and Related Products)
Section cross-reference(s): 42, 50

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI WO 9900468	A1	19990107	WO 1998-US13120	19980626

W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, GW, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM

RW: GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, CY, DE,

DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG

AU 9882630		A1	19990119	AU 1998-82630	1998 0626
US 6090756		A	20000718	US 1998-105566	1998 0626
PRAI US 1997-53014P		P	19970626		
WO 1998-US13120		W	19980626		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
WO 9900468	ICM	C10M111-04
	ICS	F41A021-22; F42B012-80; F42B005-295; F42B012-82; F42B007-04
WO 9900468	ECLA	C10M111/04
US 6090756	NCL	508/118.000; 102/511.000; 427/407.100; 427/419.700; 508/129.000; 508/131.000; 508/155.000; 508/167.000
	ECLA	C10M169/04

AB Compns. and methods for the coating and/or ballistic conditioning of firearm **projectiles** and firearm components including **gun** ~~barrels, firearm~~ chambers, fully assembled cartridges, shotgun shells, shotgun wads, shot capsules. and sabots with molybdenum disulfide (MoS2) were presented which would provide a hardened lubricating layer inside the barrel or on the shell (i.e., to a thickness of 0.005-0.025 mm). The composition comprises powdered MoS2 (average particle size <8 μ) suspended in a carrier comprising a volatile solvent and a binder selected from cellulose, alkyd, and acrylic resins, at a concentration of 0.5-1.2 lb MoS2/gal carrier. An addnl. **solid lubricant** (e.g., graphite or boron nitride) can be present. Application methods include by aerosol spraying, airless and air-assisted spraying, air brush, or spray pumper, wicking, wiping, brushing, dip coating, or immersion.

ST **solid lubricant gun** barrel molybdenum disulfide; ammunition cartridge **solid lubricant**; ballistics conditioning **gun** barrel lubrication

IT Sprays
(aerosols; for application of materials for coating and conditioning of firearms **projectiles** and firearms components)

IT **Guns** (weapons)
(barrels; compns. and method for coating and conditioning of firearms **projectiles** and firearms components)

IT **Projectiles**
(bullets; compns. and method for coating and conditioning of firearms **projectiles** and firearms components)

IT Flow
(capillary, wicking; for application of materials for coating and conditioning of firearms **projectiles** and firearms components)

IT Acrylic polymers, uses
Alkyd resins
Shellac
(carrier liquid containing; compns. and method for coating and conditioning of firearms **projectiles** and firearms components)

IT **Guns** (weapons)
Propellants (sprays and foams)
(compns. and method for coating and conditioning of firearms **projectiles** and firearms components)
IT Coating process
(dip; for application of materials for coating and conditioning of firearms **projectiles** and firearms components)
IT Coating process
(immersion; for application of materials for coating and conditioning of firearms **projectiles** and firearms components)
IT Ammunition
(shells; compns. and method for coating and conditioning of firearms **projectiles** and firearms components)
IT **Lubricants**
(**solid**; compns. and method for coating and conditioning of firearms **projectiles** and firearms components)
IT Coating process
(spray; for application of materials for coating and conditioning of firearms **projectiles** and firearms components)
IT Fatty acids, uses
(tall-oil, carrier liquid containing; compns. and method for coating and conditioning of firearms **projectiles** and firearms components)
IT 67-63-0, Isopropyl alcohol, uses 67-64-1, Acetone, uses 71-23-8, n-Propanol, uses 71-36-3, 1-Butanol, uses 84-74-2, Dibutyl phthalate 85-44-9, 1,3-Isobenzofurandione 85-68-7, Santicizer 160 107-70-0, Pentoxone 108-10-1, Methyl isobutyl ketone 108-88-3, Toluene, uses 115-77-5, uses 123-86-4, Butyl acetate 141-78-6, Acetic acid ethyl ester, uses 1330-20-7, Xylene, uses 9003-63-8, Elvacite 2044 9004-36-8, Cellulose, acetate butanoate 9004-57-3, Ethyl cellulose
(carrier liquid containing; compns. and method for coating and conditioning of firearms **projectiles** and firearms components)
IT **1317-33-5**, Molybdenum disulfide, uses **7782-42-5**, Graphite, uses 10043-11-5, Boron nitride, uses
(lubricant; compns. and method for coating and conditioning of firearms **projectiles** and firearms components)
IT 9004-34-6, Cellulose, uses 9004-70-0, Cellulose nitrate
(resins, carrier liquid containing; compns. and method for coating and conditioning of firearms **projectiles** and firearms components)
RE.CNT 11 THERE ARE 11 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Acheson Industries; GB 975331 A 1964 HCAPLUS
(2) Bangor Punta Corporation; EP 0010845 A 1980 HCAPLUS
(3) Crowcroft, P; GB 2079418 A 1982
(4) Crowcroft, P; GB 2079905 A 1982
(5) Dear, J; US 2919647 A 1960
(6) Fujii, H; US 5116521 A 1992 HCAPLUS
(7) Kobe Steel Ltd; JP 59174699 A 1984 HCAPLUS
(8) Oiles Ind Kk; JP 49096034 A 1974 HCAPLUS
(9) Seidel, J; US 3356029 A 1967 HCAPLUS
(10) Taylor, D; GB 2141360 A 1984 HCAPLUS
(11) Vatsvog, M; US 4196670 A 1980

L75 ANSWER 14 OF 59 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 1999:686478 HCAPLUS
DN 131:288476
ED Entered STN: 28 Oct 1999
TI Molybdenum disulfide-coated **gun** propellants for fouling inhibition of **gun** barrels
IN Hensler, Jerry
PA USA
SO U.S., 2 pp.
CODEN: USXXAM
DT Patent
LA English
IC ICM C06D005-06
ICS C06B045-14
INCL 102288000
CC 50-1 (Propellants and Explosives)
Section cross-reference(s): 51
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 5970877	A	19991026	US 1998-33059	1998 0302

PRAI US 1998-33059 19980302
CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
US 5970877	ICM	C06D005-06
	ICS	C06B045-14
	INCL	102288000
US 5970877	NCL	102/288.000; 102/289.000; 102/290.000; 102/511.000; 149/015.000; 149/020.000
	ECLA	C06B023/04; C06B045/18

AB **Gun** propellant powder is coated with <0.5 weight% MoS2 (preferably 0.3 weight%) of particle size 20-42 μ (preferably 20-80 μ). The coated **gun** propellant powder can also be conventionally coated with graphite as well as with MoS2. Such a coating inhibits fouling of the **gun** barrel and reduces the necessity of frequent cleaning.
ST **gun** propellant coating molybdenum sulfide; lubricant coating **gun** barrel molybdenum sulfide; antifouling coating **gun** barrel molybdenum sulfide
IT Coating materials
(antifouling; molybdenum disulfide-coated **gun** propellants for fouling inhibition of **gun** barrels)
IT **Guns** (weapons)
(barrels, fouling of; molybdenum disulfide-coated **gun** propellants for fouling inhibition of **gun** barrels)
IT Propellants (fuels)
(**gun**; molybdenum disulfide-coated **gun** propellants for fouling inhibition of **gun** barrels)
IT **Lubricants**
(**solid**; molybdenum disulfide-coated **gun** propellants for fouling inhibition of **gun** barrels)
IT **1317-33-5**, Molybdenum disulfide, uses **7782-42-5**, Graphite, uses
(lubricant coating; molybdenum disulfide-coated **gun** propellants for fouling inhibition of **gun** barrels)
RE.CNT 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE

(1) Briere; US 4979999 1990 HCAPLUS
(2) Coffman; US 2299465 1942
(3) Dobbs; US 4203264 1980
(4) Hinshaw; US 5725699 1998 HCAPLUS
(5) Hinshaw; US 5735118 1998 HCAPLUS
(6) Kirchoff; US 4203787 1980 HCAPLUS
(7) Kurtz; US 4759885 1988
(8) Passauer; US 3947300 1976 HCAPLUS
(9) Quinlan; US 3730094 1973 HCAPLUS
(10) Ruohonen; US 5421263 1995
(11) Taylor; US 5387296 1995 HCAPLUS
(12) Wallace; US 4735146 1988
(13) Wallace; US 4858534 1989

L75 ANSWER 15 OF 59 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 1999:648504 HCAPLUS
DN 131:274927
ED Entered STN: 12 Oct 1999
TI Painted steel sheet with excellent press workability
IN Ishikawa, Hanji; Takahashi, Toshitsugu; Nakamura, Takafumi
PA Nisshin Steel Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 13 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM B05D007-14
ICS B21D022-20; B32B015-08
CC 55-6 (Ferrous Metals and Alloys)
Section cross-reference(s): 51
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 11276989	A2	19991012	JP 1998-101761	1998 0331

PRAI JP 1998-101761 19980331
CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
JP 11276989	ICM	B05D007-14
	ICS	B21D022-20; B32B015-08

AB The **surface paint** layer and/or back paint layer of the steel sheet contains 0.5-3 weight% solid **lubricant** with average diameter 1.1-1.9 times as large as the dry thickness of the paint layer. The dry paint layer has high gloss (≥65 gloss by JIS-Z-8741 at angles of incidence and reflection 60°) and resistance to pressure marks. The painted steel sheet has excellent press workability.
ST painted steel sheet **lubricant** press workability; drawing workability painted steel sheet **lubricant**; stretch workability painted steel sheet **lubricant**
IT **Lubricating** greases
(paint layer containing, diameter control; painted steel sheet with good surfaces and excellent press workability)
IT Drawing (forming)
(painted steel sheet with good surfaces and excellent press workability)
IT Coating process
(painting; painted steel sheet with good surfaces and excellent

press workability)
IT Polyesters, uses
(paints, solid **lubricant**-containing; painted steel sheet with good surfaces and excellent press workability)
IT Fluoropolymers, uses
(solid **lubricant**, paint layer containing, diameter control; painted steel sheet with good surfaces and excellent press workability)
IT Paints
(solid **lubricant**-containing; painted steel sheet with good surfaces and excellent press workability)
IT Metalworking
(stretch forming; painted steel sheet with good surfaces and excellent press workability)
IT 12597-69-2, Steel, processes
(painted steel sheet with good surfaces and excellent press workability)
IT **9002-84-0**, Polytetrafluoroethylene 9002-88-4, Polyethylene
(solid **lubricant**, paint layer containing, diameter control; painted steel sheet with good surfaces and excellent press workability)

L75 ANSWER 16 OF 59 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 1999:133368 HCAPLUS
DN 130:210872
ED Entered STN: 02 Mar 1999
TI Surface-treated metallic plate with good perspiration resistance and good **lubrication** and its production method
IN Yoshikawa, Masanori; Fujimoto, Junichi; Shinohara, Nobuyuki; Sugimoto, Yoshiyuki
PA Toyo Kohan Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 6 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM B32B015-08
ICS B32B015-08; B05D007-14
CC 42-10 (Coatings, Inks, and Related Products)
Section cross-reference(s): 56
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 11048403	A2	19990223	JP 1997-223004	1997 0806

PRAI JP 1997-223004 19970806
CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
JP 11048403	ICM	B32B015-08
	ICS	B32B015-08; B05D007-14

AB The plate is prepared by coating an organic polymeric primer (polyurethane) on a metallic plate then with an organic polymeric topcoat (olefin-modified acrylic polymer) which contains a silica and/or a **lubricant** (PTFE).
ST polyurethane primer coating metal plate; acrylic polymer topcoat **lubrication** metal; silica PTFE topcoat perspiration resistance

IT Acrylic polymers, uses
(olefin-modified; surface-treated metallic plate with good perspiration resistance and good **lubrication** and its production method)
IT Sweat
(resistant of; surface-treated metallic plate with good perspiration resistance and good **lubrication** and its production method)
IT Primers (**paints**)
(**surface**-treated metallic plate with good perspiration resistance and good **lubrication** and its production method)
IT Metals, miscellaneous
(surface-treated metallic plate with good perspiration resistance and good **lubrication** and its production method)
IT Polyurethanes, uses
(topcoat and primer; surface-treated metallic plate with good perspiration resistance and good **lubrication** and its production method)
IT Fluoropolymers, uses
(topcoat containing; surface-treated metallic plate with good perspiration resistance and good **lubrication** and its production method)
IT Polyesters, uses
(topcoat; surface-treated metallic plate with good perspiration resistance and good **lubrication** and its production method)
IT Coating materials
(topcoats; surface-treated metallic plate with good perspiration resistance and good **lubrication** and its production method)
IT 7631-86-9, Silica, uses **9002-84-0**, PTFE
(topcoat containing; surface-treated metallic plate with good perspiration resistance and good **lubrication** and its production method)

L75 ANSWER 17 OF 59 WPIX COPYRIGHT 2005 THE THOMSON CORP on STN
AN 2000-107026 [10] WPIX
DNC C2000-032387
TI Self-lubricating composite material and its preparation - is prepared by wet or dry mixing polyisophthalate metaphenylenediamine with poly p-phthalamide terephthalate pulp, **graphite**, molybdenum disulfide, etc..
DC A23 A97 H07
IN LI, T; LIU, X; TIAN, N
PA (SINI-N) SINICA LANZHOU INST CHEM PHYSICS
CYC 1
PI CN 1232839 A 19991027 (200010)* 1 C08L077-06
ADT CN 1232839 A CN 1999-104207 19990317
PRAI CN 1999-104207 19990317
IC ICM C08L077-06
ICS C08K003-36
AB CN 1232839 A UPAB: 20000921
A self-lubricating composite material is prepared by wet or dry mixing polyisophthalate metaphenylenediamine with poly p-phthalamide terephthalate pulp, **graphite**, molybdenum disulfide and other **solid lubricants** as well as rare earth fluoride and other modifiers. The mixture is hot pressed into the composite material at 300-330 deg.C temperature

and 60-120 MPa pressure.

The composite material has friction coefficient less than 0.25, abrasion rate lower than 1.89 x 10power-15 m3/N.m, hardness higher than 350 MPa and bending strength greater than 190 MPa.

USE - The composite may be used in bearings, gears and other **moving parts** for chemical, textile, automobile, mechanical and other industries.

Dwg.0/0

FS CPI
FA AB
MC CPI: A05-F05; A08-M03B; A08-R08A; A12-H03; A12-S08D1; H07-A

L75 ANSWER 18 OF 59 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 1999:280508 HCAPLUS
DN 131:51125
ED Entered STN: 06 May 1999
TI Review of black surfaces for space-borne infrared systems
AU Persky, M. J.
CS Lincoln Laboratory, Massachusetts Institute of Technology, 244 Wood Street, Lexington, MA, 02420-9108, USA
SO Review of Scientific Instruments (1999), 70(5), 2193-2217
CODEN: RSINAK; ISSN: 0034-6748
PB American Institute of Physics
DT Journal; General Review
LA English
CC 73-0 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 42
AB Low reflectivity (black) surface treatments for space-borne IR systems are reviewed. The uses of black surfaces in general, as well as for specific space-borne applications are discussed. Compns. of a wide variety of surface treatments with examples of exptl. data to characterize performances are provided. Specific treatments included are: Ames 24E paint; Akzo 463 (Sikkens, Cat-A-Lac) **paint**; **Ball** IR black **paint** ; Chemglaze (Aeroglaze) Z 306 and Z 302 paints; Eccosorb 268E paint; Parsons Black paint; black anodize; black Hardlub; black Hardcoat; Martin Black; InfraBlack; Enhanced Martin Black; Ebonal C; Teflon; ion beam textured; appliques; black chrome; black etched Be on Be; plasma sprayed B on Be; plasma sprayed Be on Be; B carbide on POCO graphite; and Kapton. Data presented for some but not all of the surfaces include: spectrally integrated, 5-25 μm hemispherical-directional reflectance; spectral reflectance at wavelengths between 2 and 500 μm for a variety of incident angles from 5° to 80°; and bidirectional reflectance at a number of wavelengths between 5 and 300 μm for a variety of incident angles from 0° to 80°. The instrumentation employed to obtain these data is briefly described. Long term stability of optical performance, as well as manufacturing reproducibility is demonstrated for several of the surfaces. Outgassing and atomic O interaction information is also included. Methodol. for calorimetric measurement of hemispherical emittance as an alternative to optical measurements is given.
ST review black coating spacecraft IR device; spectrometer IR spectrometer black coating review; ion beam texturing black coating spectrometer IR device review; antireflection coating black spacecraft IR device review
IT Optical films
Paints
(black; review of antireflection black surface coatings for

space-borne IR systems)
IT Antireflective films
IR spectrometers
Space vehicles
(review of antireflection black surface coatings for space-borne IR systems)
IT Fluoropolymers, uses
(review of antireflection black surface coatings for space-borne IR systems)
IT Ion beams
(texturing; review of antireflection black surface coatings for space-borne IR systems)
IT 7440-41-7, Beryllium, uses 7440-42-8, Boron, uses **7782-42-5**, Graphite, uses **9002-84-0** 12069-32-8, Boron carbide (B4C) 25036-53-7, Kapton 56747-92-3, Black chrome 70322-91-7, Chemglaze Z302 70378-48-2, Chemglaze Z306 83138-40-3, Martin Black 83869-64-1, Ebanol C 90092-75-4, InfraBlack 129130-91-2, Eccosorb 268E 185766-25-0, Enhanced Martin Black 185766-35-2, Martin Flat Black Anodize 227465-84-1, Cat-a-lac 463-3-8B 227465-85-2, Ball IR Black 227465-86-3, Black Hardcoat 227465-87-4, Black Hardlub 227465-89-6, Ames 24E 227465-92-1, Parsons Optical Black
(review of antireflection black surface coatings for space-borne IR systems)
RE.CNT 93 THERE ARE 93 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Ames, A; Proc SPIE 1990, V1331, P300
(2) Ames, A; Proc SPIE 1990, V1331, P300
(3) Ames, A; Proc SPIE 1990, V1331, P301
(4) Ames, A; Proc SPIE 1990, V1331, P301
(5) Ames, A; Proc SPIE 1990, V1331, P304
(6) Anon; (personal communication) C L Mosier
(7) Anon; (personal communication) from B Saggin
(8) Anon; (personal communication) from D Eckert
(9) Anon; (personal communication) from D F Everett
(10) Anon; (personal communication) from D F Shepard
(11) Anon; (personal communication) from D Lencioni
(12) Anon; (personal communication) from D Shepard, Outgassing Data for Selecting Spacecraft Materials, Rev 3 1993
(13) Anon; (personal communication) from E Ramberg
(14) Anon; (personal communication) from E Ramberg
(15) Anon; (personal communication) from J J Bock
(16) Anon; (personal communication) from J Young
(17) Anon; (personal communication) from L Kauder
(18) Anon; (personal communication) from M Endemann
(19) Anon; (personal communication) from M T Beecroft
(20) Anon; (personal communication) from S H C P McCall
(21) Anon; (personal communication) from S H C P McCall
(22) Anon; (personal communication) from S H C P McCall
(23) Anon; (personal communication) from Snail
(24) Anon; (personal communication) from Y Kameda
(25) Anon; (personal communication) from Y Karmeda
(26) Anon; personal communication from K Snail
(27) Anon; personal communication) from D Shepard
(28) Beecroft, M; Proc SPIE 1992, V1753, P304
(29) Beecroft, M; Proc SPIE 1992, V1753, P307
(30) Bergener, D; Proc SPIE 1884, V511, P67
(31) Blatchley, C; Proc SPIE 1992, V1753, P317
(32) Blatchley, C; Proc SPIE 1992, V1753, P324
(33) Bloomquist, W; Proc SPIE 1996, V2864, P368 HCAPLUS

(34) Bock, J; Ph D thesis, University of California 1994
(35) Dyer, J; Proc SPIE 1992, V1754, P177 HCAPLUS
(36) Dyer, J; Proc SPIE 1992, V1754, P177 HCAPLUS
(37) Egart, C; Proc SPIE 1990, V1330, P178
(38) Hamilton, C; Proceedings of the Seventh SDL/USU and NIST Symposium on Infrared Radiometric Sensor Calibration 1997
(39) Hawarden, T; Space Sci:Rev 1995, V74, P45
(40) Henninger, J; Solar Absorptance and Thermal Emittance of Some Common Spacecraft Thermal-Control Coatings 1984, P7
(41) Kordas, J; Proc SPIE 1995, V2478, P179
(42) Kordas, J; Proc SPIE 1995, V2466, P75
(43) Mason, I; Appl Opt 1996, V35, P629
(44) McCall, S; Proc SPIE 1992, V1753, P158
(45) McCall, S; Proc SPIE 1994, V2260, P178 HCAPLUS
(46) McCall, S; Proc SPIE 1994, V2260, P33 HCAPLUS
(47) McCall, S; Proc SPIE 1996, V2864, P308
(48) McGraw-Hill; Handbook of Optics 1995, V11, P25.3
(49) Nicodemus, F; The concept of BRDF is presented 1977
(50) Peterson, G; Proc SPIE 1992, V1753, P65
(51) Pompea, S; Handbook of Optics, Chap 37 1995, V11
(52) Pompea, S; No publication given P37.17
(53) Pompea, S; Opt Eng 1984, V23, P149 HCAPLUS
(54) Pompea, S; Opt Eng (Bellingham) 1984, V23, P151
(55) Pompea, S; Proc SPIE 1984, V511, P27
(56) Pompea, S; Proc SPIE 1988, V967, P236
(57) Pompea, S; Proc SPIE 1988, V967, P237
(58) Pompea, S; Proc SPIE 1988, V967, P237
(59) Pompea, S; Proc SPIE 1988, V967, P238
(60) Pompea, S; Proc SPIE 1988, V967, P240
(61) Pompea, S; Proc SPIE 1988, V967, P245
(62) Pompea, S; Proc SPIE 1992, V1753
(63) Priest, R; Proc SPIE 1995, V2475, P396
(64) Priest, R; Proc SPIE 1995, V2475, P408
(65) Sampair, T; NASA-CP-3134 1992, P935
(66) Seals, R; Proc SPIE 1992, V1753, P196
(67) Seals, R; Proc SPIE 1992, V1753, P196
(68) Seals, R; Proc SPIE 1992, V1753, P199
(69) Seals, R; Proc SPIE 1992, V1753, P199
(70) Shumway, A; Proc SPIE 1996, V2864, P387
(71) Shumway, A; Proc SPIE 1996, V2864, P389
(72) Shumway, A; Proc SPIE 1996, V2864, P391
(73) Silver, D; Proc SPIE 1994, V2261, P160 HCAPLUS
(74) Smith, S; Proc SPIE 1988, V967, P248
(75) Smith, S; Proc SPIE 1988, V967, P249
(76) Smith, S; Proc SPIE 1988, V967, P249
(77) Smith, S; Proc SPIE 1988, V967, P249
(78) Smith, S; Proc SPIE 1988, V967, P250
(79) Smith, S; Proc SPIE 1988, V967, P251
(80) Smith, S; Proc SPIE 1988, V967, P252
(81) Smith, S; Proc SPIE 1994, V2260, P204
(82) Smith, S; Proc SPIE 1994, V2260, P206
(83) Smith, S; Proc SPIE 1998, V3426 HCAPLUS
(84) Smith, S; Proc SPIE 1998, V3426 HCAPLUS
(85) Snail, K; Proc SPIE 1996, V2864, P465 HCAPLUS
(86) Snail, K; Proc SPIE 1996, V2864, P466
(87) Snail, K; Proc SPIE 1996, V2864, P470
(88) Snail, K; Proc SPIE 1996, V2864, P471
(89) Thurgood, A; Proceedings of the BMD Metrology Program Review, (unpublished) 1996
(90) Ungar, S; Proc SPIE 1989, V1157, P375

(91) Wilson, C; Proc Fourth SDL/USU Symposium on Infrared Radiometric Sensor Calibration 1994
(92) Wise, T; Proc SPIE 1996, V2864, P364
(93) Wooldridge, E; Proc 7th International Symposium on Materials in Space Environment, (unpublished) 1997, VSP-399, P127

L75 ANSWER 19 OF 59 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 1998:192482 HCAPLUS
DN 128:246021
ED Entered STN: 02 Apr 1998
TI Tribological characteristics of **solid-lubricated** ball bearings operated for 10,000 hours in a vacuum
AU Nishimura, Makoto; Suzuki, Mineo
CS Coll. Eng., Hosei Univ., Koganei, 184-8584, Japan
SO Toraiborojisuto (1998), 43(3), 234-241
CODEN: TORAEO; ISSN: 0915-1168
PB Nippon Toraiboroji Gakkai
DT Journal
LA Japanese
CC 51-8 (Fossil Fuels, Derivatives, and Related Products)
AB Ball bearings stably works for 10,000 h continuously over a wide rotational speed range in a vacuum, when lubricated by sputtered MoS2 film and Mo-added PTFE supplied from a holder. MoS2 and PTFE are found on the steel **ball operated** at 2000 rpm, the most severe condition adopted in this study, for 10,000 h by x-ray photoelectron spectroscopic anal., which indicates that lubricating is transitional from the initial one by MoS2 to that by PTFE even at 10,000 h. It is considered that Mo added works as a catalyst for holding worn powder of MoS2 and formation of the transitional PTFE film.
ST tribol characteristic **solid lubricant** ball bearing; molybdenum disulfide lubricant ball bearing; PTFE molybdenum **solid lubricant**
IT Bearings
(ball; tribol. characteristics of **solid-lubricated** ball bearings)
IT Fluoropolymers, uses
(film; tribol. characteristics of **solid-lubricated** ball bearings)
IT **Lubricants**
(**solid**; tribol. characteristics of **solid-lubricated** ball bearings)
IT Lubrication
(tribol. characteristics of **solid-lubricated** ball bearings)
IT 9002-84-0, PTFE
(film; tribol. characteristics of **solid-lubricated** ball bearings)
IT 12597-69-2, Steel, uses
(tribol. characteristics of **solid-lubricated** ball bearings)
IT **7439-98-7**, Molybdenum, uses
(tribol. characteristics of **solid-lubricated** ball bearings)
IT 1317-33-5, Molybdenum disulfide, uses
(tribol. characteristics of **solid-lubricated** ball bearings)

L75 ANSWER 20 OF 59 WPIX COPYRIGHT 2005 THE THOMSON CORP on STN
AN 1997-229404 [21] WPIX

DNN N1997-189629 DNC C1997-073680
TI Method of manufacturing wear resistant multilayer material for machinery - involves making lugs on substrate surface by electrode spark welding, with wear resistant **solid lubricant** layer then being applied on lugs.
DC A97 E31 M11 M13 Q62
IN KIM, K H; RYU, B J; YANG, S H; YANG, S; KIM, G H; RYOO, B J
PA (SMSU) SAMSUNG HEAVY IND CO LTD
CYC 6
PI GB 2306584 A 19970507 (199721)* 16 F16C033-04
DE 19643922 A1 19970507 (199724) 7 C23F017-00
JP 09202978 A 19970805 (199741) 5 C23C030-00
KR 97020283 A 19970528 (199821) B23K011-00
US 5869798 A 19990209 (199913) B23K009-00
CN 1157378 A 19970820 (200137) F16C033-02
ADT GB 2306584 A GB 1996-22567 19961030; DE 19643922 A1 DE 1996-1043922 19961030; JP 09202978 A JP 1996-303971 19961030; KR 97020283 A KR 1995-38598 19951031; US 5869798 A US 1996-742424 19961030; CN 1157378 A CN 1996-120269 19961030
PRAI KR 1995-38598 19951031
IC ICM B23K009-00; B23K011-00; C23C030-00; C23F017-00; F16C033-02; F16C033-04
ICS B23K009-04; C10M103-06; C10M105-52
ICI C10N010:12
AB GB 2306584 A UPAB: 19970522
The method involves making lugs (2) on substrate surface by electrode spark welding. A **solid lubricant** layer (3) having a wear resistance is then applied on the lugs.

The lugs may be made from copper alloys, molybdenum alloys, cobalt alloys, alloys of iron and other **metals.** It is preferable to use MoS2 or poly fluoro ethylene (PTFE); or soft **metals** such as Pb, Sn, Bi, Zn or other alloys as material of the **solid lubricant** layer.

USE/ADVANTAGE - Provides lubrication into bearing inside contact moving side of pin/bush joint, where it is difficult to refill the lubricant or stop the contact moving side for oiling as in the case of food machine. The material can be used as the joint **part moving** in high load and low speed. Has long life cycle and the re-providing period of lubricant is low.
Dwg.1,3/5
FS CPI GMPI
FA AB; GI; DCN
MC CPI: A04-E08; A12-W02; A12-W12F; E35-Q; M11-H; M13-K

L75 ANSWER 21 OF 59 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 1997:708685 HCAPLUS
DN 128:6168
ED Entered STN: 10 Nov 1997
TI Effect of dispersed fillers on wear resistance of thermal spray metal-polymeric coatings
AU Borisov, Yu. S.; Sviridova, I. S.; Korzhik, V. N.
CS Inst. Elektrosvarki im. Patona, NAN Ukr., Ukraine
SO Avtomaticheskaya Svarka (1997), (3), 49-51
CODEN: AVSVAU; ISSN: 0005-111X
PB Institut Elektrosvarki im. E. O. Patona NAN Ukrainy
DT Journal
LA Russian
CC 56-6 (Nonferrous Metals and Alloys)
AB Thermal-spray metal-polymeric coatings are promising for protection of **parts operating** under the

sliding friction conditions. Addition of a filler-of the Fe40Ni40B20 alloy powder (Grade PG-N3 acc. to TU IES 733-89) in the amount of 5...30 volume % into the polymeric matrix of the low-pressure polyethylene (LPPE) of the 20906-040 grade (GOST 16338-77) leads to a decrease in the friction coefficient (f=0,31...0,25) and the intensity of wear (I=1,5·10-5...6,1·10-6 m/km) under conditions of sliding friction using no lubrication. Temperature of the insert is decreased by 30°, as compared with the flame-spray coatings of LPPE without a metal filler (f=0,38, I=1,1·10-4). Addition of a **solid-lubricant** in the form of a composite powder of the «copper-graphite» system into the spraying powder mixture leads to a decrease in the friction coefficient to f=0,29, wear intensity to I=1,1·10-6 m/km and temperature of the insert by 50°. Under conditions of friction with a limited lubrication the metal-polymeric coatings, in comparison with the cast bronze, are characterized by the 2,2 times lower friction coefficient, by about an order of magnitude higher wear resistance and the smaller damage of the mating body.

ST filler wear thermal spray polymeric coating; **solid lubricant** polymeric coating bronze filler

IT Fillers
Lubrication
(effect of dispersed fillers on wear resistance of thermal spray metal-polymeric coatings)

IT Wear
(frictional; effect of dispersed fillers on wear resistance of thermal spray metal-polymeric coatings)

IT Friction
(sliding; effect of dispersed fillers on wear resistance of thermal spray metal-polymeric coatings)

IT **Lubricants**
(**solid**; effect of dispersed fillers on wear resistance of thermal spray metal-polymeric coatings)

IT Coating process
(thermal spraying; effect of dispersed fillers on wear resistance of thermal spray metal-polymeric coatings)

IT 9002-88-4, Polyethylene **57621-45-1**, BrO-10 **172377-98-9**
(effect of dispersed fillers on wear resistance of thermal spray metal-polymeric coatings)

L75 ANSWER 22 OF 59 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 1997:101848 HCAPLUS
DN 126:111972
ED Entered STN: 13 Feb 1997
TI Removal of material by polarized radiation and back side application of radiation
IN Engelsberg, Audrey C.; Johnson, Andrew W.; Parker, William P.
PA Cauldron Limited Partnership, USA
SO PCT Int. Appl., 55 pp.
CODEN: PIXXD2
DT Patent
LA English
IC ICM H01L021-268
ICS B08B007-00; C23C014-28
CC 76-3 (Electric Phenomena)
Section cross-reference(s): 73, 75
FAN.CNT 4

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE

PI	WO 9641370	A1	19961219	WO 1996-US9331	1996 0605
	W: AL, AM, AT, AU, AZ, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG				
	RW: KE, LS, MW, SD, SZ, UG, AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN				
	JP 10504139	T2	19980414	JP 1995-511067	1995 0915
	JP 3267977	B2	20020325	JP 1996-511067	1995 0915
	CA 2222502	AA	19961219	CA 1996-2222502	1996 0605
	AU 9659892	A1	19961230	AU 1996-59892	1996 0605
	EP 834191	A1	19980408	EP 1996-917247	1996 0605
	EP 834191	B1	20020102		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, IE, FI				
	CN 1194057	A	19980923	CN 1996-196069	1996 0605
	BR 9609065	A	19990126	BR 1996-9065	1996 0605
	AT 211584	E	20020115	AT 1996-917247	1996 0605
	NO 9705637	A	19980128	NO 1997-5637	1997 1204
	LV 12080	B	19981020	LV 1998-1	1998 0105
	US 6048588	A	20000411	US 1998-39439	1998 0316
	HK 1004944	A1	20030829	HK 1998-104145	1998 0513
PRAI	US 1995-472762	A	19950607		
	US 1988-216903	A3	19880708		
	US 1990-611198	A2	19901109		
	US 1992-865039	B2	19920331		
	US 1993-45165	B2	19930412		
	US 1994-306431	A	19940919		
	WO 1995-US11993	W	19950915		
	WO 1996-US9331	W	19960605		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
WO 9641370	ICM	H01L021-268
	ICS	B08B007-00; C23C014-28
WO 9641370	ECLA	B08B007/00S2; G03F007/20B; G03F007/20T12; G03F007/20T18; G03F007/20T26; G03F007/42; H01L021/3205M; H01L021/768B4
CA 2222502	ECLA	G03F007/20T18; G03F007/20T26
AU 9659892	ECLA	G03F007/20T18; G03F007/20T26
CN 1194057	ECLA	G03F007/20T18; G03F007/20T26
BR 9609065	ECLA	G03F007/20T18; G03F007/20T26
NO 9705637	ECLA	G03F007/20T18; G03F007/20T26
LV 12080	ECLA	G03F007/20T18; G03F007/20T26
US 6048588	NCL	427/554.000; 134/001.000; 204/192.320; 216/065.000; 216/066.000; 219/121.690; 219/121.840; 257/E21.295; 257/E21.580; 427/596.000
	ECLA	B08B007/00S2; G03F007/20T12; G03F007/20T18; G03F007/20T26; H01L021/00S2D4; H01L021/3205M; H01L021/768B4

AB An apparatus and method for selectively removing undesired material from the surface of a substrate provides a flow of inert gas over the undesired material substrate surface while irradiating the undesired material with energetic photons. The invention enables removal of undesired material without altering the phys. properties of the material underlying or adjacent the removed, undesired material. Removal effectiveness may be enhanced by using polarized energetic photons. Directing a laser beam to the back side of a transparent substrate may enhance the effectiveness of removal.

ST material removal substrate polarized radiation; laser irradn back side substrate

IT Laser radiation
(in removal of undesired material from substrate surfaces)

IT Noble gases, processes
(in removal of undesired material from substrate surfaces by irradiation)

IT Electromagnetic wave
(polarized; removal of undesired material from substrate surfaces by)

IT Borosilicate glasses
Organometallic compounds
(removal of films and particles from)

IT Lenses
(removal of films and particles from hafnium oxide films on)

IT Latex
Lubricating oils
(removal of films and particles from surfaces)

IT Polycarbonates, processes
(removal of films and particles from surfaces)

IT Glycols, processes
(removal of films and particles from surfaces)

IT Adhesives
(removal of films from lenses)

IT Saliva
(removal of films from lenses)

IT Fingerprints (skin pattern)
Inks
(removal of films from surfaces by polarized radiation in presence of flowing inert gas)

IT Fluoropolymers, processes
(removal of ink from)
IT Sputtering targets
(removal of oxides from target surfaces by polarized radiation in presence of flowing inert gas)
IT Paints
(removal of **paints** from **surfaces** by polarized radiation in presence of flowing inert gas)
IT Glass, processes
(removal of particles from films on surfaces of)
IT Particles
(removal of particles from surfaces)
IT Piezoelectric materials
(removal of particles from surfaces of)
IT Photon
(removal of undesired material from substrate surfaces by)
IT Oxides (inorganic), processes
(removal of; from substrate surfaces by polarized radiation in presence of flowing inert gas)
IT Nanostructures
(selective removal of substrate material in creation of)
IT Transparent materials
(substrates; removal of undesired material from surfaces of)
IT Nickel alloy
(removal of oxides from surfaces by polarized radiation in presence of flowing inert gas)
IT Molybdenum alloy
(sputtering target; removal of oxides from target surfaces by polarized radiation in presence of flowing inert gas)
IT **7440-21-3**, Silicon, processes
(polycryst.; removal of films from surfaces by polarized radiation in presence of flowing inert gas)
IT 75-24-1, Trimethylaluminum
(removal of films and particles from)
IT 12055-23-1, Hafnium oxide
(removal of films and particles from surfaces)
IT 14808-60-7, Quartz, processes 60676-86-0, Vitreous silica
(removal of films from surfaces by polarized radiation in presence of flowing inert gas)
IT 7440-02-0, Nickel, processes
(removal of films from surfaces of)
IT **9002-84-0**, PTFE 9003-07-0, Polypropylene
(removal of ink from)
IT 16397-91-4, Manganese(2+), processes
(removal of manganese ions from quartz)
IT 1314-23-4, Zirconium oxide, processes 1314-35-8, Tungsten oxide (WO3), processes 1314-61-0, Tantalum oxide 1332-37-2, Iron oxide, processes 11098-99-0, Molybdenum oxide 11118-57-3, Chromium oxide 12061-16-4, Erbium oxide
(removal of oxides from sputtering target surfaces by polarized radiation in presence of flowing inert gas)
IT 7440-50-8, Copper, processes
(removal of oxides from surfaces by polarized radiation in presence of flowing inert gas)
IT 1344-70-3, Copper oxide
(removal of oxides from surfaces by polarized radiation in presence of flowing inert gas)
IT 11109-50-5, AISI 304
(removal of **paints** from **surfaces** by polarized radiation in presence of flowing inert gas)

IT 7429-90-5, Aluminum, processes 12031-63-9, Lithium niobate (LiNbO3) 12031-66-2, Lithium tantalate (LiTaO3) 50926-11-9, ITO
(removal of particles from surfaces of)
IT 7440-25-7, Tantalum, processes 7440-33-7, Tungsten, processes 7440-47-3, Chromium, processes 7440-52-0, Erbium, processes 7440-67-7, Zirconium, processes 11148-13-3 12597-69-2, Steel, processes
(sputtering target; removal of oxides from target surfaces by polarized radiation in presence of flowing inert gas)

L75 ANSWER 23 OF 59 WPIX COPYRIGHT 2005 THE THOMSON CORP on STN
AN 1996-181138 [19] WPIX
DNN N1996-152177
TI Lobe type pump for automotive superchargers - has rubbing part surfaces coated with solid film lubricants and has reduced clearances between them for higher efficiency.
DC Q51 Q56
IN FUCINARI, C A; RAO, V D N
PA (FORD) FORD MOTOR CO CANADA; (FORD) FORD MOTOR CO; (FORD) FORD MOTOR CO LTD; (FORD) FORD WERKE AG
CYC 6
PI EP 705979 A1 19960410 (199619)* EN 10 F04C002-08
R: DE ES GB
CA 2159389 A 19960408 (199632) F04C002-24
US 5554020 A 19960910 (199642) 8 F01C021-00
US 5638600 A 19970617 (199730) 8 B23P015-00
EP 705979 B1 20001227 (200102) EN F04C002-08
R: DE ES GB
DE 69519712 E 20010201 (200114) F04C002-08
MX 194810 B 20000110 (200115) F01C021-008
ADT EP 705979 A1 EP 1995-307109 19951006; CA 2159389 A CA 1995-2159389 19950928; US 5554020 A US 1994-319909 19941007; US 5638600 A Div ex US 1994-319909 19941007, US 1996-633273 19960416; EP 705979 B1 EP 1995-307109 19951006; DE 69519712 E DE 1995-619712 19951006, EP 1995-307109 19951006; MX 194810 B MX 1995-4174 19951002
FDT US 5638600 A Div ex US 5554020; DE 69519712 E Based on EP 705979
PRAI US 1994-319909 19941007; US 1996-633273 19960416
REP EP 101345; EP 109823; FR 2011788; FR 2589527; FR 2637947; GB 2143279; US 4509906
IC ICM B23P015-00; F01C021-00; F01C021-008; F04C002-08; F04C002-24
ICS F01C021-010; F01C021-08; F01C021-10; F04C002-008
AB EP 705979 A UPAB: 19960510
The gas fluid pump for automotive superchargers is of the lobe type, having two three lobe intermeshing rotors, housed in a case (14) with inlet and outlet ports (20) and (24). In prior art pumps the clearances had to be sufficient to prevent high fluid shear losses between **moving parts.**
In this pump, the various surfaces associated with **moving part** clearances are coated with low friction wear resistant **solid lubricating** films (11). This permits the use of closer tolerances and the use of lightweight materials for parts (14,15 and 16).
ADVANTAGE - Increased pump efficiency and overall weight reduction.
Dwg.1/6
FS GMPI
FA AB; GI

L75 ANSWER 24 OF 59 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 1996:56609 HCAPLUS
DN 124:104389
ED Entered STN: 27 Jan 1996
TI Corrosion-resistant rare earth magnet and its manufacture
IN Furuya, Takashi
PA Daido Steel Co Ltd, Japan
SO Jpn. Kokai Tokkyo Koho, 4 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM H01F001-053
ICS C23C022-00; C23C022-74; C23C022-78; H01F041-02
CC 77-4 (Magnetic Phenomena)
Section cross-reference(s): 55, 56
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 07302705	A2	19951114	JP 1994-95114	1994 0509

PRAI JP 1994-95114 19940509
CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
JP 07302705	ICM	H01F001-053
	ICS	C23C022-00; C23C022-74; C23C022-78; H01F041-02

AB The rare earth magnet (sintered or resin-bonded) is coated with a metal undercoating layer selected from Zn, Al, Cd, and Cu and a chromate layer. The manufacture involves applying a hardening resin on a magnet, forming a metal undercoat layer by drum painting method (shaking a drum containing a magnet, metal powders, and alumina balls or stirring), hardening the resin, and forming a chromate coating.
ST neodymium iron boron magnet corrosion; anticorrosive rare earth magnet chromate; drum painting chromate coating magnet
IT Rare earth alloys
(magnets; manufacture of corrosion-resistant rare earth magnets having chromate coating on metal undercoat)
IT Coating materials
(manufacture of corrosion-resistant rare earth magnets having chromate coating on metal undercoat)
IT Chromates
Epoxy resins, uses
(manufacture of corrosion-resistant rare earth magnets having chromate coating on metal undercoat)
IT Magnets
(rare earth; manufacture of corrosion-resistant rare earth magnets having chromate coating on metal undercoat)
IT 1344-28-1, Aluminum oxide, uses
(alumina **balls** for drum **painting**; manufacture of corrosion-resistant rare earth magnets having chromate coating on metal undercoat)
IT 135043-93-5P 137572-71-5P
(manufacture of corrosion-resistant rare earth magnets having chromate coating on metal undercoat)
IT 7429-90-5, Aluminum, uses 7440-43-9, Cadmium, uses **7440-50-8**, Copper, uses **7440-66-6**, Zinc, uses
(undercoat; manufacture of corrosion-resistant rare earth magnets having chromate coating on metal undercoat)

L75 ANSWER 25 OF 59 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 1995:238718 HCAPLUS
DN 122:326297
ED Entered STN: 10 Dec 1994
TI Surface analysis of LCD materials in various stages of production by time-of-flight secondary ion mass spectroscopy (TOF-SIMS)
AU Lee, J. J.; Lindley, P. M.; Odom, R. W.
CS Charles Evans & Associates, Redwood City, CA, 94063, USA
SO Materials Research Society Symposium Proceedings (1994), 345, 197-204
CODEN: MRSPDH; ISSN: 0272-9172
PB Materials Research Society
DT Journal
LA English
CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 66, 73, 79, 80
AB Time-of-flight secondary ion mass spectrometry (TOF-SIMS) is a surface anal. technique which provides a sensitive characterization of the elemental and mol. composition of the near-surface region (top few monolayers) of solid materials. This mass spectrometry technique can also localize the distribution of specific elements, mols. or mol. fragments at submicrometer (μm) lateral resolns. This paper presents the results of TOF-SIMS analyses of LCD material surfaces during various stages of production of the color filter side of Thin Film Transistor (TFT) LCDs. Sp. surfaces analyzed included the Cr mask, Cr patterned **surface**, **color** filter (RGB) regions, topcoat polymer and Indium Tin Oxide (ITO) layer. Both elemental and mol. contaminants were detected on the surfaces of these samples at several of the processing stages. Typical organic contaminants included polydimethylsiloxane (a common mold release agent and/or machine **lubricant**), polyethylene glycols (PEG), various fatty acids and glycerides. Inorg. contaminants included Na, K, Ca, Cl, Br, sulfates and phosphates. Pos. or neg. ion images showed distinctive patterns for most of these contaminants. Mol. ions of Cu phthalocyanine used as the blue dye in the RGB deposition step were also detected and localized.
ST surface analysis LCD material TOF SIMS; color filter thin film transistor LCD
IT Fatty acids, analysis
Glycerides, analysis
Phosphates, analysis
(contaminant; TOF-SIMS analyses of LCD material surfaces during various stages of production of the color filter side of Thin Film Transistor LCDs)
IT Surface analysis
(surface anal. of LCD materials in various stages of production by time-of-flight secondary ion mass spectroscopy)
IT Siloxanes and Silicones, analysis
(di-Me, contaminant; TOF-SIMS analyses of LCD material surfaces during various stages of production of the color filter side of Thin Film Transistor LCDs)
IT Optical imaging devices
(electrooptical liquid-crystal, surface anal. of LCD materials in various stages of production by time-of-flight secondary ion mass spectroscopy)
IT Transistors
(field-effect insulated-gate, TOF-SIMS analyses of LCD material surfaces during various stages of production of the color filter

side of Thin Film Transistor LCDs)
IT Mass spectrometry
(secondary-ion, time-of-flight, surface anal. of LCD materials in various stages of production by time-of-flight secondary ion mass spectroscopy)
IT 7440-47-3, Chromium, uses 50926-11-9, Indium tin oxide
(TOF-SIMS analyses of LCD material surfaces during various stages of production of the color filter side of Thin Film Transistor LCDs)
IT 147-14-8, Copper phthalocyanine 7429-90-5, Aluminum, analysis 7439-92-1, Lead, analysis 7440-09-7, Potassium, analysis **7440-21-3**, Silicon, analysis 7440-23-5, Sodium, analysis 7440-24-6, Strontium, analysis 7440-39-3, Barium, analysis 7440-45-1, Cerium, analysis 7440-70-2, Calcium, analysis 10097-32-2, Atomic bromine, analysis 22537-15-1, Atomic chlorine, analysis 25322-68-3, Polyethylene glycol
(contaminant; TOF-SIMS analyses of LCD material surfaces during various stages of production of the color filter side of Thin Film Transistor LCDs)

L75 ANSWER 26 OF 59 WPIX COPYRIGHT 2005 THE THOMSON CORP on STN
AN 1993-265864 [34] WPIX
DNN N1993-203919 DNC C1993-118465
TI Lubrication pf moving **metal** contact surfaces - by application under pressure of **solid lubricant** block, e.g. PTFE, PE. polyamide filled or not with **graphite**, and continuously depositing lubricating film-forming particles.
DC A97 Q68
IN CLARET, P; PRADIER, F
PA (NEYR) NEYPRIC FRAMATOME MECANIQUE; (TRAN-N) TRANSROL; (NEYR) NEYRPIC FRAMATOME MECANIQUE
CYC 9
PI EP 551028 A1 19930714 (199334)* FR 9 F16N015-00
R: BE CH DE ES FR GB IT LI SE
FR 2683613 A1 19930514 (199332) 13 F16N015-00
ADT EP 551028 A1 EP 1992-403019 19921109; FR 2683613 A1 FR 1991-13831 19911108
PRAI FR 1991-13831 19911108
REP 2.Jnl.Ref; DE 2413417; EP 250670; FR 1390421; GB 1151618; GB 2116646; JP 61185753; SU 634066; US 4381824
IC ICM F16N015-00
AB EP 551028 A UPAB: 19950314
The **metal** contact surfaces of **moving parts** (1, 2, 5) of mechanical systems are lubricated by depositing on them particles of **solid lubricant** so forming a regenerated **solid lubricant** film.
The **solid lubricant** may be PTFE, pure or loaded with e.g. **graphite** or molybdenum; PE, pure or loaded with **graphite**; polyamide, pure or loaded with **graphite**; **graphite** or lead.
A screw-nut roller bearing with screw (1) satellite rollers (2), internally threaded outer race (5) enclosing the satellite rollers and sealing end plates (7) is lubricated by **solid lubricant** blocks (11, 12) fitted in end cases (10) and maintained under spring pressure in contact with the screw (1) which by rotation removes **solid lubricant** particles onto itself.
USE/ADVANTAGE - Lubrication of moving **metal** contact surfaces in mechanical systems partic. screw-nut roller bearings,

especially those operating at low temp ranges e.g. +40 deg. to minus 196 deg. Gives better performance and larger life than oil or grease lubrication.
Dwg.1/3
Dwg.1/3
FS CPI GMPI
FA AB

L75 ANSWER 27 OF 59 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 1994:138837 HCAPLUS
DN 120:138837
ED Entered STN: 19 Mar 1994
TI Application of an electron cyclotron resonance ion **gun** to the sputtering of MoS2 films
AU Kawamura, M.; Nishimura, M.; Suzuki, M.
CS Kawamura Res. Lab., Inc., Japan
SO Int. Conf. Process. Mater. Prop., 1st (1993), 1149-52. Editor(s): Henein, Hani; Oki, Takeo. Publisher: Miner. Met. Mater. Soc, Warrendale, Pa.
CODEN: 59TDAS
DT Conference
LA English
CC 51-8 (Fossil Fuels, Derivatives, and Related Products)
AB Molybdenum disulfide **solid lubricant** films were prepared by electron cyclotron resonance ion beam sputtering. Higher d. films were obtained under lower pressure and the d. of the film varied from 5.7 g/cm3 to 4.5 g/cm3 with sputtering pressure changing from 2.4 + 10-2 Pa to 2.5 + 10-1 Pa. Tribol. characteristics of the films on 440C steel substrate were examined in ball-on-disk configuration both in nitrogen gas and vacuum. Wear life of the film in nitrogen gas was 7 times longer than in vacuum. Longer wear life was observed for higher d. film.
ST molybdenum disulfide lubricant film sputtering; electron cyclotron resonance ion sputtering film
IT **Lubricants**
(**solid**, films, molybdenum disulfide, sputtering of, electron cyclotron resonance ion **gun** in)
IT **1317-33-5**, Molybdenum disulfide, uses
(lubricant films, sputtering, of, electron cyclotron resonance ion **gun** in)

L75 ANSWER 28 OF 59 COMPENDEX COPYRIGHT 2005 EEI on STN
AN 1994(14):2235 COMPENDEX
TI MA reduces wear of self-lubricating materials.
AU Gunther, B. (Fraunhofer Inst of Applied Materials Research, Bremen, Ger); Kunze, H.-D.; Vetl, G.
SO Metal Powder Report v 48 n 11 Nov 1993.p 20-22
CODEN: MPWRAQ ISSN: 0026-0657
PY 1993
DT Journal
TC Application; Experimental
LA English
AB Refining the microstructure of solid high temperature lubricants has been suggested as a way of improving their performance.B. **Gunther**, H.-D.Kunze and G.Vetl of the Fraunhofer Institute of Applied Materials Research in Bremen, Germany, together with K. Takahashi of Toyota Motor Corp in Aichi, Japan, have been investigating mechanical alloying as a means of achieving this improvement.(Author abstract)
CC 531.1 Metallurgy; 607.1 Lubricants; 531.2 Metallography; 536.1

Powder Metallurgy Operations; 802.3 Chemical Operations; 544.2 Copper Alloys
CT *Alloying; Tungsten compounds; Powder **metallurgy**; Ball milling; Brass; Self lubricating composites; Transmission electron microscopy; **Graphite**; **Solid lubricants** ; **Metallographic** microstructure
ST Mechanical alloying
ET H; K

L75 ANSWER 29 OF 59 WPIX COPYRIGHT 2005 THE THOMSON CORP on STN
AN 1992-176865 [22] WPIX
DNN N1992-133433 DNC C1992-081059
TI Thermal spray powder and new abradable coatings - comprising matrix forming component, **solid lubricant** and plastic, useful as abradable seals on engine shroud or compression housing.
DC A82 A88 L02 M13 Q51
IN MILLER, R A; RANGASWAMY, S
PA (SULZ) SULZER PLASMA TECH INC
CYC 9
PI EP 487273 A1 19920527 (199222)* EN 11 C23C004-04
R: CH DE ES FR GB IT LI
US 5196471 A 19930323 (199314) 9 C08K003-10
EP 487273 B1 19950614 (199528) EN 14 C23C004-04
R: CH DE ES FR GB IT LI
DE 69110416 E 19950720 (199534) C23C004-04
US 5434210 A 19950718 (199534) 10 C08K003-08
ADT EP 487273 A1 EP 1991-310594 19911115; US 5196471 A US 1990-615557 19901119; EP 487273 B1 EP 1991-310594 19911115; DE 69110416 E DE 1991-610416 19911115, EP 1991-310594 19911115; US 5434210 A Cont of US 1990-615557 19901119, US 1992-952023 19920928
FDT DE 69110416 E Based on EP 487273; US 5434210 A Cont of US 5196471
PRAI US 1990-615557 19901119; US 1992-952023 19920928
REP 2.Jnl.Ref; DE 2413382; GB 2152079; JP 59222566; US 3723165; 02Jnl.Ref
IC ICM C08K003-08; C08K003-10; C23C004-04
ICS F01D011-08
AB EP 487273 A UPAB: 19931006
Thermal spray powder comprising a matrix-forming component, a **solid lubricant** and a plastic. Method of forming a thermal spray powder comprising (1) combining the matrix-forming component, the **solid lubricant** and a plastic, and (2) agglomerating the components together to form agglomerated particles. Abradable material comprising (a) a substantially continuous matrix formed of **metals**, **metal** alloys and **ceramics**, (b) **solid lubricant** inclusions dispersed throughout the matrix, and (c) plastic inclusions dispersed through the matrix. Method of forming an abradable coating comprises (1) providing the thermal spray powder, (2) heating and accelerating the powder towards a substrate with a thermal **gun** to form a deposit on the substrate, and (3) allowing the deposit to cool on the substrate to form the abradable coating.

USE/ADVANTAGE - As an abradable seal on an engine shroud or compression housing (claimed). The seals may be formed in low temperature environments and do not adhere to rotating parts. The coating may be custom formulated for a **partic.** **operating** environment.

0/5
FS CPI GMPI

FA AB
MC CPI: A11-B05B1; A12-B01; A12-T04C; A12-W12F; L02-F03; M13-C; M13-H; M13-K; M22-H01; M22-H03F

L75 ANSWER 30 OF 59 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 1991:494604 HCAPLUS
DN 115:94604
ED Entered STN: 06 Sep 1991
TI Aqueous paint peeling compositions for coatings permitting removal of undesired paint from surfaces
IN Komatsu, Keisaku; Yamada, Takashi; Owatari, Toshimi
PA Kaken Tech Co., Ltd., Japan
SO U.S., 6 pp. Cont.-in-part of U.S. 4,844,833.
CODEN: USXXAM
DT Patent
LA English
IC ICM C11D010-00
ICS B08B007-00
INCL 252174130
CC 42-11 (Coatings, Inks, and Related Products)
FAN.CNT 3

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 5017303	A	19910521	US 1989-345585	19890501
	JP 62174281	A2	19870731	JP 1986-17630	19860128
	JP 06013652	B4	19940223		
	JP 62246973	A2	19871028	JP 1986-90684	19860418
	JP 06053865	B4	19940720		
	US 4844833	A	19890704	US 1988-248247	19880919
PRAI	JP 1986-17630	A	19860128		
	JP 1986-90684	A	19860418		
	US 1987-7300	B1	19870127		
	US 1988-248247	A2	19880919		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
US 5017303	ICM	C11D010-00
	ICS	B08B007-00
	INCL	252174130
US 5017303	NCL	510/206.000; 134/004.000; 134/038.000; 252/381.000; 252/382.000; 510/418.000; 510/475.000
US 4844833	NCL	510/206.000; 134/004.000; 134/038.000; 252/381.000; 252/383.000; 510/418.000; 510/475.000

AB The title compns. contain 17-25% poly(vinyl alc.) (I) or 2-12% acrylic resin or poly(vinyl acetate) and a substance which when heated is in the form of minute shells enclosing a gas or vapor, the shells being thermally expandable without rupturing (e.g., synthetic resin microballoons). Thus, a surface was coated with a composition containing I 21, synthetic resin microballoons 8, Me cellulose

2, and water 68%. A thermosetting paint was allowed to accumulate (6.2 mm) on the coating before the surface was contacted with a hot solution of caustic soda (200 g/L) to cause complete peeling of the unwanted paint from the surface during 90 s.

ST paint adhesion preventer microballoon; polyvinyl alc adhesion preventer paint; vinyl polymer adhesion preventer paint; acrylic resin adhesion preventer paint

IT Coating removers
(microballoon- and polymer-containing compns., for protecting surfaces)

IT Spheres
(micro-, plastic, paint adhesion-preventing compns. containing, aqueous)

IT Coating materials
(paints, adhesion-preventing layers for, microballoon- and polymer-containing)

IT **7440-44-0**, Carbon, uses and miscellaneous
(**balloons**, **paint** adhesion-preventing compns. containing, aqueous)

IT 9002-89-5, Poly(vinyl alcohol) 9003-20-7, Poly(vinyl acetate)
(paint adhesion-preventing compns. containing, aqueous)

L75 ANSWER 31 OF 59 WPIX COPYRIGHT 2005 THE THOMSON CORP on STN
AN 1992-023803 [03] WPIX
DNN N1992-018217 DNC C1992-010241
TI **Solid lubricant** zones are formed on surface of boron carbide **ceramic** - by nitrogen ion implantation and laser annealing.
DC L02 P42
IN CHU, W K; REEBER, R R; YU, N
PA (USSA) US SEC OF ARMY
CYC 1
PI US 5075130 A 19911224 (199203)*
ADT US 5075130 A US 1990-618195 19901119
PRAI US 1990-618195 19901119
IC B05D003-06; C23C014-00
AB US 5075130 A UPAB: 19931006
Nitrogen ions are implanted into a boron-based or boron-containing **ceramic** material which is then laser-annealed to form a **solid lubricant** in the **ceramic** surface; the **ceramic** is opt. masked with blocking material to prevent implantation of specified regions to form pockets of lubricant. The **ceramic** is pref. boron carbide and the lubricant is boron nitride.

Ion implantation is pref. at 100 KeV with a total dose of 4 x 10 power 17 nitrogen ions/cm2, and annealing is pref. with a xenon chloride laser operating at 1.5-2 joules/cm2 at 45 nanosecond dwell time. The blocking material is pref. silicon or carbon and is opt. in stencil form.

USE/ADVANTAGE - Durability of boron-based **ceramics** is increased by reducing friction, wear, chipping and fracture for use as bearings or **moving parts** e.g. for a **ceramic** engine.

2A/4
FS CPI GMPI
FA AB; GI
MC CPI: L02-A; L02-H02A; L02-H02B2; L02-J02C

L75 ANSWER 32 OF 59 WPIX COPYRIGHT 2005 THE THOMSON CORP on STN
AN 1990-239056 [31] WPIX

DNC C1990-103401
TI Surface treatment of sliding contact surfaces - by coating with **solid lubricant** layer and anti-seizure layer.
DC M13 P73 Q17 Q68
IN BLOUET, J; GRAS, R; PATIN, J F; ROBBEVALLO, F; PATIN, J; ROBBE-VALLOIRE, F
PA (NRDA) AERO-SPATIALE; (PATI-I) PATIN J F; (NRDA) AEROSPATIALE
CYC 14
PI WO 9007588 A 19900712 (199031)*
RW: AT BE CH DE ES FR GB IT LU NL
W: US
FR 2641363 A 19900706 (199034)
CA 2006462 A 19900630 (199037)
EP 409926 A 19910130 (199105)
R: CH DE ES FR GB IT LI NL SE
EP 409926 B1 19950412 (199519) FR 9 C25D007-10
R: CH DE ES FR GB IT LI NL SE
DE 68922213 E 19950518 (199525) C25D007-10
ADT FR 2641363 A FR 1988-17517 19881230; EP 409926 A EP 1990-900888 19891229; EP 409926 B1 WO 1989-FR686 19891229, EP 1990-900888 19891229; DE 68922213 E DE 1989-622213 19891229, WO 1989-FR686 19891229, EP 1990-900888 19891229
FDT EP 409926 B1 Based on WO 9007588; DE 68922213 E Based on EP 409926, Based on WO 9007588
PRAI FR 1988-17517 19881230
REP 1.Jnl.Ref; FR 1544541; JP 60077990
IC B32B015-18; B60R001-00; C25D005-10; C25D007-10; F16N017-06
AB WO 9007588 A UPAB: 19950508
In the surface treatment of two parts in sliding contact by surface coating at least one of the parts with a **solid lubricant** layer, the novelty is that, prior to applying the **solid lubricant** layer, an intermediate layer of an anti-seizure material, with very low or zero misability in the liquid state with the **metal** of the other part, is applied.

In a similar process, the **solid lubricant** layer is applied to one of the parts and the anti-seizure layer is applied to the other part.

Also claimed is a fragile element support structure comprising a **metallc** support and a **metallic** interface joint between the support and the fragile element, the novelty being that either (i) one of the two **metallic** parts, formed by the support and the interface joint, is coated with the anti-seizure layer and then the **solid lubricant** layer; or (ii) one of the two parts is coated with the **solid lubricant** layer and the other part is coated with the anti-seizure layer.

USE/ADVANTAGE - The process is applicable to relatively **moving parts**, as well as normally fixed parts (e.g. a mirror or lens mounting structure) having different expansion coeffts. The support structure is useful for fragile elements such as mirrors or lenses for use in vacuum, especially on artificial satellites, space vehicles and missiles. The combination of a **solid lubricant** layer and an anti-seizure layer allows relative motion to avoid over-stressing of the fragile part and seizure of the parts even when the **solid lubricant** deteriorates or wears away locally, thus extending service life two-to ten-fold. @(23pp Dwg.No.0/0)
0/0

FS CPI GMPI
FA AB
MC CPI: M11-A05; M13-K

L75 ANSWER 33 OF 59 WPIX COPYRIGHT 2005 THE THOMSON CORP on STN
AN 1990-101204 [14] WPIX
CR 1990-101205 [14]; 1993-361308 [46]
DNN N1990-078207 DNC C1990-044425
TI Abradable seal material for improved uniformity - obtd. by feeding powdered filler axially into combustion gas stream which then atomises and entrains molten **metal** before impinging on target.
DC A88 L02 M13 P42
IN MARANTZ, D R; MILLER, R A; RANGASWAMY, S
PA (PLAS-N) PLASMA TECH AG; (SULZ) SULZER PLASMA TECH INC; (PLAS-N) PLASMA TECH AG
CYC 23
PI EP 361709 A 19900404 (199014)* EN 8
R: AT BE CH DE ES FR GB IT LI LU NL SE
PT 91754 A 19900330 (199017)
NO 8903746 A 19900417 (199021)
NO 8903748 A 19900417 (199021)
DK 8904619 A 19900321 (199025)
DK 8904620 A 19900321 (199025)
ZA 8906634 A 19900530 (199026)
ZA 8906635 A 19900530 (199026)
FI 8904379 A 19900321 (199027)
FI 8904380 A 19900321 (199027)
AU 8941335 A 19900329 (199030)
AU 8941336 A 19900329 (199030)
BR 8904694 A 19900501 (199033)
BR 8904695 A 19900501 (199033)
JP 02225598 A 19900907 (199042)
CN 1041545 A 19900425 (199105)
CN 1042951 A 19900613 (199111)
US 5019686 A 19910528 (199124) 20
US 5206059 A 19930427 (199318) 14 B05D001-08
EP 361709 B1 19931020 (199342) EN 16 C23C004-12
R: AT BE CH DE ES FR GB IT LI LU NL SE
US 5262206 A 19931116 (199347) 11 B05D001-08
DE 68910072 E 19931125 (199348) C23C004-12
ES 2045458 T3 19940116 (199407) C23C004-12
KR 9514071 B1 19951121 (199903) C23C004-04
ADT EP 361709 A EP 1989-309077 19890907; ZA 8906634 A ZA 1989-6634 19890830; ZA 8906635 A ZA 1989-6635 19890830; JP 02225598 A JP 1989-242367 19890920; US 5019686 A US 1988-247024 19880920; US 5206059 A Div ex US 1988-247024 19880920, US 1991-664271 19910304; EP 361709 B1 EP 1989-309077 19890907; US 5262206 A CIP of US 1988-247024 19880920, Cont of US 1989-326775 19890321, US 1992-821291 19920113; DE 68910072 E DE 1989-610072 19890907, EP 1989-309077 19890907; ES 2045458 T3 EP 1989-309077 19890907; KR 9514071 B1 KR 1989-13460 19890919
FDT US 5206059 A Div ex US 5019686; US 5262206 A CIP of US 5019686; DE 68910072 E Based on EP 361709; ES 2045458 T3 Based on EP 361709
PRAI US 1989-326775 19890321; US 1988-247024 19880920; US 1991-664271 19910304; US 1992-821291 19920113
REP 3.Jnl.Ref; EP 118249; EP 282310; FR 1434948; FR 516567; JP 62047441; JP 63121648; JP 63137154; US 3723165; WO 8301751; EP 232919
IC B05B007-20; B05D001-08; C23C004-12; C23C014-00

ICM B05D001-08; C23C004-04; C23C004-12
ICS B05B007-20; B05B007-22; C23C014-00
AB EP 361709 A UPAB: 19981210
A composite material is obtd. by feeding a fillter, pref. axially, into a stream of high temperature combustion gases which then atomise and entrain a molten **metal.** The gas stream is directed at a target on which there is deposited a dispersion of filler in a **metal** matrix. Pref. the gas stream is formed at supersonic velocity and the **metal** is supplied by maintaining the tip of at least one wire in the gas stream. In a modification two wires are provided and then tips melted by passing an arc between them.
USE/ADVANTAGE - Production of abradable seals for turbines. Segrationm of powders is avoided and a uniform deposit obtd. Degradation of feed is prevented. Compositional gradient can be achieved without need for complex powder metering systems.
Dwg.1/7
FS CPI GMPI
FA AB; GI
MC CPI: A12-H08; L02-J01; L02-J01C; M13-C

L75 ANSWER 34 OF 59 COMPENDEX COPYRIGHT 2005 EEI on STN
AN 1991(6):62088 COMPENDEX DN 910668642
TI People in finishing: Part SS - dry film lubricants.
AU Weiner, Milton
SO Met Finish v 88 n 10 Oct 1990 p 47-48
CODEN: MEFIA7 ISSN: 0026-0576
PY 1990
DT Journal
TC General Review
LA English
AB This article discusses the properties and applications of dry film lubricants focusing on how **metals** are prepared for dry film lubrication.It is indicated that as far as equipment is concerned, the praparation is similar to **metal** finishing and electroplating. The application of the actual dry film lubricants uses equipment similar to paint application, like spray **guns** and spray booths.1 Reference
CC 607 Lubricants & Lubrication; 813 Coatings & Finishes; 531 Metallurgy & Metallography; 931 Applied Physics
CT ***LUBRICANTS**:**Solid** Films; **METALS** AND ALLOYS:Surface Treatment; SPRAY **GUNS**:Applications; FILMS:Preparation
ST DRY FILM LUBRICANTS; SPRAY BOOTHS

L75 ANSWER 35 OF 59 WPIX COPYRIGHT 2005 THE THOMSON CORP on STN
AN 1989-263618 [36] WPIX
DNN N1989-201153 DNC C1989-117056
TI Applying **solid lubricant** to porous uneven surface e.g. **ceramic** - by depositing excess particles of lubricant on the surface and burnishing it.
DC L02 P42 P73
IN LEE, K Y; SAMPATH, W
PA (COOA) COORS CO ADOLPH
CYC 12
PI WO 8907524 A 19890824 (198936)* EN 22
RW: AT BE CH DE FR GB IT LU NL SE
W: JP
US 4900579 A 19900213 (199013) 7
ADT WO 8907524 A WO 1989-US627 19890214; US 4900579 A US 1988-158169

19880218
PRAI US 1988-158169 19880218
REP SU 1276672; SU 558369; US 1964671; US 3075279; US 3573962; US 3632368
IC B05D001-12; B05D003-02; B05D007-22; B32B035-00
AB WO 8907524 A UPAB: 19930923
Solid lubricant is applied to a substrate which has surface depressions and pores by: depositing lubricant particles in excess of the amount needed to fill the depressions and pores, and burnishing the substrate to evenly distribute and bond the particles on the substrate. The lubricant particles are pref. deposited from a fluid particle suspn.
USE/ADVANTAGE - In lubricating e.g. high temperature **ceramic** engine components. Method is simple and efficient and can be used to maintain lubrication of high temperature **moving parts.**
0/4
FS CPI GMPI
FA AB
MC CPI: L02-G08

L75 ANSWER 36 OF 59 WPIX COPYRIGHT 2005 THE THOMSON CORP on STN
AN 1988-272618 [39] WPIX
DNN N1988-207076 DNC C1988-121312
TI Diamond heat sink mfr. - by attaching **metallised** diamond to baseplate using thin solder **metal** layer.
DC L03 M23 U11
IN PETERS, J A M
PA (DRUK-N) DRUKKER INT BV
CYC 8
PI EP 284150 A 19880928 (198839)* EN 6
R: DE FR GB IT NL
NL 8700673 A 19881017 (198845)
JP 63254753 A 19881021 (198848)
US 4800002 A 19890124 (198906) 6
CA 1268263 A 19900424 (199022)
ADT EP 284150 A EP 1988-200496 19880317; NL 8700673 A NL 1987-673 19870323; JP 63254753 A JP 1988-67472 19880323
PRAI NL 1987-673 19870323
REP EP 142282; US 3678995; US 4425195
IC C25D005-02; H01L021-48; H01L023-36
AB EP 284150 A UPAB: 19930923
Diamond heat sink is made by: **metallising** (6) a diamond (5); attaching it to a base plate via a thin solder **metal** layer heat being supplied through the diamond to the contact surface; coating the diamond and base plate with an leave a diamond heat sink formed of the diamond and the **metal** layer.
USE/ADVANTAGE - Useful in HF chip components, e.g. **Gunn**, IMPATT and TRAPATT diodes. Method of attaching the diamond to the base plate is simple and effective.
2/4
FS CPI EPI
FA AB; GI
MC CPI: L04-C25; M23-A04
EPI: U11-C20; U11-D01B1; U11-D01B3; U11-D02B

L75 ANSWER 37 OF 59 WPIX COPYRIGHT 2005 THE THOMSON CORP on STN
AN 1987-253498 [36] WPIX
DNC C1987-107252

TI Substrate coated with **solid lubricant** film - is made by laser beam vaporising molybdenum etc. alloy in hydrogen sulphide atmos..
DC M14
PA (MITO) MITSUBISHI HEAVY IND CO LTD
CYC 1
PI JP 62174366 A 19870731 (198736)* 4
ADT JP 62174366 A JP 1986-15760 19860129
PRAI JP 1986-15760 19860129
IC C23C014-06; C23C016-30
AB JP 62174366 A UPAB: 19930922
In the formation of sulphide skin film, an alloy of Mo, W or Fe or alloy of any 2 or more of these is vaporised by being heated in an atmosphere of hydrogen sulphide over which laser beam is kept irradiated so that sulphide is vapour-deposited on the substrate.
This procedure can be executed with the appts. as shown in Figure 1, with (1) Fixture, (2) Vacuum Container, (3) Electron **Gun**, (4) Electron Beam, (5) Alloy, (6) Shield, (7) **Metal** Vapour, (8) Window, (9) Purge GAs inlet, (10) Laser Beam, (11) Hydrogen Sulphide Charge pipe, (12) Substrate, (13) Heater, (14) Mask, (15) Crucible. The film formed with this procedure can be used as **solid lubricant** film.
With this procedure, the skin film can be formed quickly.
1/2
FS CPI
FA AB
MC CPI: M13-F02; M13-K

L75 ANSWER 38 OF 59 WPIX COPYRIGHT 2005 THE THOMSON CORP on STN
AN 1987-225954 [32] WPIX
DNC C1987-095444
TI Lubricant with good smoothing effect, heat and oxidation resistance - and adhesion to **metals**, contains 6-22C alpha-amino fatty acids.
DC E16 H07
PA (AJIN) AJINOMOTO KK
CYC 1
PI JP 62151495 A 19870706 (198732)* 6
ADT JP 62151495 A JP 1985-296264 19851226
PRAI JP 1985-296264 19851226
IC C10M105-60; C10M117-02; C10M133-06; C10N030-12; C10N050-08
AB JP 62151495 A UPAB: 19930922
Typical alpha-amino fatty acids include alpha-amino octanoic, lauric, myristic, palmitic, stearic, icosanoic, docosanoic, alpha-amino-beta- methyl-heptanoic, nonoic, tridecanoic, pentadecanoic, heptadecanoic, and nonadecanoic acids. Ordinary **solid lubricants**, such as **graphite**, mica, talc, zinc white, sulphur, and molybdenum sulphide are pref. used in improvement of the adhesion and **metallic** corrosion resistance.
USE/ADVANTAGE - The lubricant has chemical resistance, **metallic** corrosion resistance, good adhesion to **metals**, and good lubricating effect under high load. It is safe for humans and can be used as a lubricant in the mfr. of foods or drugs. It can also be used to lubricate rotary and **moving parts** in almost all types of machines and for cutting, polishing, press, drawing and rust-proofing. It is also usable as a grease by adding to base oils such as mineral oils and synthetic lubricating oils.
0/2

FS CPI
FA AB; DCN
MC CPI: E10-B02D6; H07-A

L75 ANSWER 39 OF 59 COMPENDEX COPYRIGHT 2005 EEI on STN
AN 1987(3):40500 COMPENDEX DN 870324878; *8752961
TI LONGER LIFE FOR FIREARMS.
AU Biggar, Calvin H. (Electrofilm Inc, Valencia, CA, USA); Droege, Frank J.
SO Prod Finish (Cincinnati) v 51 n 4 Jan 1987 p 54-56
CODEN: PRFCAB ISSN: 0032-9940
PY 1987
DT Journal
TC Application
LA English
AB The interior mechanism and exterior surfaces of firearms are being lubricated and protected against corrosion with bonded solid-film lubricant coatings.Wear resistance and service life are increased over that provided by conventional oil or grease treatments, phosphating and blueing.These solid-film lubricants consist of resin, solvent carrier and such other ingredients such as molybdenum disulfide, **graphite**, polytetrafluoroethylene and other materials.No oil or grease is present.1 reference
CC 601 Mechanical Design; 421 Materials Properties; 539 Metals Corrosion & Protection
CT ***GUNS**:Lubrication; **LUBRICANTS:Solid** Films; WEAR OF MATERIALS; CORROSION PROTECTION
ST FIREARMS; BONDING

L75 ANSWER 40 OF 59 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 1985:208080 HCAPLUS
DN 102:208080
ED Entered STN: 15 Jun 1985
TI Surface treatment of production parts
IN Saga, Toshihiko; Makita, Tsuyoshi; Hirono, Hisao
PA Honda Motor Co., Ltd., Japan
SO Ger. Offen., 27 pp.
CODEN: GWXXBX
DT Patent
LA German
IC ICM C23C017-00
ICS F01L001-16
CC 56-6 (Nonferrous Metals and Alloys)
Section cross-reference(s): 55
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 3433698	A1	19850404	DE 1984-3433698	1984 0913
	DE 3433698	C2	19870611		
	JP 60070136	A2	19850420	JP 1983-168405	1983 0914
	JP 03053388	B4	19910814		
	FR 2551770	A1	19850315	FR 1984-14115	1984 0914
	FR 2551770	B1	19890721		

PRAI JP 1983-168405 A 19830914

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
DE 3433698	ICM	C23C017-00
	ICS	F01L001-16

AB The surface of a metal substrate, such as cast iron and Al alloy, is made abrasion resistant by plasma arc melting while feeding into the melt zone powdered additives of different chemical from the substrate and fast self-cooling. The additives are ≥1 of Ni, Cr, Mo, etc., their alloys, carbides such as WC, SiC, Mo2C, Cr3C, B4C, etc., borides such as BN, TiB, etc., sulfides such as MoS2 WS2, FeS, Cr2S3, etc., and oxides such as Al2O3, SiO2, and similar compds. The surface is lubricated by alloying with sulfides, such as 0.2-12 volume% Cr sulfide or 0.5-20 volume% FeS. The plasma **gun** is equipped with inclined feeding tubes on both sides, the plasma gas (Ar) flow rate is 2-20 m/s, and the flow rate of the powdered additives is 1.5-3 times that of the shielding gas. Typical elec. parameters of the plasma arc are 30-200 A and 20-30 V, and the powder size <200, preferably <100 μ. Thus, cast iron FC30 [77045-28-4] was surface melted by a plasma arc at 50 A, and 0.8 L/min, and travel rate 0.5 m/min using Cr powder (5-100 μ) at 0.2 g/min. The molten layer of 1.8 mm thickness cooled to a chilled surface containing 1.2 volume% Cr particles. The sp. abrasion loss was 8.6 + 10-8 mm2/kg vs. 2.2 + 10-7 when no Cr powder was used. Other substrates, such as S50C [12731-95-2], were surface alloyed with Mo2C, or Ni-10% Cu alloy [**37243-18-8**] with TiB powder, or the above cast iron with FeS powder forming (Fe,Mn) S, and AC2B [**128999-39-3**] Al alloy with Al2O3. When Cr2S3 powder was used, complex sulfides were formed, such as (Cr, Fe)2S3, (Cr,Fe,Mn)2S3, (Cr,Fe)3S4, and (Cr,Fe,Mn)3S4. A 0.5%-C steel was surface melted using a mixture of powdered Cr3C2 with 50 weight% of MoS2. The surface hardening by alloying was used for a rocker arm from steel SCM420 [**67701-92-2**] or a camshaft from the above cast iron.

ST plasma surface alloying wear; cast iron surface alloying wear; steel surface alloying wear; nickel copper surface alloying wear; aluminum surface alloying wear

IT Plasma, chemical and physical effects
(surface alloying by, for abrasion resistance)

IT Engines
(camshafts, surface alloying of cast iron and steel, by plasma melting for wear resistance)

IT **Lubricants**
(**solid**, surface alloying with sulfide, for friction wear resistance)

IT Engines
(valve rocker arms, surface alloying of cast iron and steel, by plasma melting for wear resistance)

IT 77045-28-4, properties
(surface alloying of cast, with chromium by plasma arc for abrasion resistance)

IT 61104-20-9, properties
(surface alloying of nodular cast, for abrasion resistance)

IT **67701-92-2**, properties
(surface alloying of, by plasma arc for abrasion resistance)

IT **128999-39-3**
(surface alloying of, with aluminum oxide by plasma arc for abrasion resistance)

IT 12731-95-2, uses and miscellaneous
(surface alloying of, with molybdenum carbide by plasma arc for abrasion resistance)
IT **37243-18-8**
(surface alloying of, with titanium boride by plasma arc for abrasion resistance)
IT 1317-37-9 12007-08-8 12018-22-3 12069-89-5
(surface alloying with, by plasma melting for abrasion resistance)
IT 12138-09-9
(surface alloying with, for abrasion resistance and lubrication)
IT 1344-28-1, properties
(surface alloying with, of aluminum alloy by plasma melting for abrasion resistance)
IT 7440-47-3, properties
(surface alloying with, of cast iron by plasma melting for abrasion resistance)
IT 12012-35-0
(surface alloying with, of steel by plasma melting for abrasion resistance)
IT **1317-33-5**, properties
(surface alloying with, of steel for abrasion resistance and lubrication)

L75 ANSWER 41 OF 59 WPIX COPYRIGHT 2005 THE THOMSON CORP on STN
AN 1985-149937 [25] WPIX
DNC C1985-065442
TI Fibre reinforced **metal** composite - comprises **solid lubricants** dispersed in fibres of composite to increase strength, heat and abrasion resistance.
DC F01 M22
PA (TOYX) TOYODA AUTOMATIC LOOM CO LTD
CYC 1
PI JP 60082645 A 19850510 (198525)* 4
ADT JP 60082645 A JP 1983-190140 19831012
PRAI JP 1983-190140 19831012
IC C22C001-09; C22C032-00
AB JP 60082645 A UPAB: 19930925
Al, Al-alloy, Mg, Mg-alloy, Cu, and Cu-alloy, are used as base **metal.** Fibre materials are SiC, **graphite**, alumina, SiC-and Si3N4- whiskers, etc..
USE/ADVANTAGE - The composite is highly reliable and is used in machine-parts for textile production, such as channels, rotors for open-end fine spinning frames, etc., and as **moving parts** such as pump vanes, etc.. **Solid lubricants** are dispersed in fibres of the composite to improve strength, heat and abrasion resistances.
In an example, 13.5 mol.% SiC whiskers and 13.5% powdered **graphite** were homogeneously dispersed in alcohol and press-formed under 30 kgf/cm2 into 50-mm dia. x 10-mm thick cylinder. Molten Al-alloy (A-390) was pressure-permeated into the fibre and then cooled.
0/3
FS CPI
FA AB
MC CPI: F01-G05; F01-H06; F03-D; M22-H03D

L75 ANSWER 42 OF 59 WPIX COPYRIGHT 2005 THE THOMSON CORP on STN
AN 1985-119048 [20] WPIX

DNN N1985-089571 DNC C1985-051538
TI Composite material for sliding - consists of **ceramic** particles applied onto surface of sintered material containing **solid lubricant** and **metal** particles.
DC L02 P73 Q62
PA (MITO) MITSUBISHI HEAVY IND CO LTD
CYC 1
PI JP 60058842 A 19850405 (198520)* 4
ADT JP 60058842 A JP 1983-166592 19830912
PRAI JP 1983-166592 19830912
IC B32B009-00; C10M103-00; C10N020-00; C10N030-06; C10N040-02; C10N050-00; F16C033-24
AB JP 60058842 A UPAB: 19930925
Material is prepared by applying (a) **ceramic** particles into the surface of (b) a sintered material produced by baking of (b1) powder of **solid lubricant** and (b2) **metal** particles.
Pref., particles (a) are, e.g., the oxides, the carbides, the nitrides, etc. Particles (a) are applied pref. with equal spacing, using **gun** or dot-type printing mechanism. Material (b1) is, e.g., **graphite**, etc. Particles (b2) are, e.g., nickel, iron, copper, etc.
USE/ADVANTAGE - The bonding of (a) with (b2) improves strength of the surface portion of the material and prevents (b2) from releasing. Since the existence of (a) reduces load face pressure at **metal** matrix portion, agglutination abrasion of **metal** is reduced. The composite material has reduced abrasion because of the low-abrasion characteristics of (a).
0/5
FS CPI GMPI
FA AB
MC CPI: L02-J01

L75 ANSWER 43 OF 59 WPIX COPYRIGHT 2005 THE THOMSON CORP on STN
AN 1985-311796 [50] WPIX
DNN N1985-231499 DNC C1985-134580
TI Low friction, wear resistant PTFE compsns. - containing a fluoro-**polymer**, **metal** oxide and other lubricants.
DC A14 A88 P73 Q62
IN MORI, S
PA (DAME) DAIDO METAL CO LTD
CYC 4
PI DE 3520068 A 19851205 (198550)* 25
GB 2161820 A 19860122 (198604)
JP 60258297 A 19851220 (198606)
US 4626365 A 19861202 (198651)
DE 3520068 C 19870402 (198713)
JP 62033275 B 19870720 (198732)
GB 2161820 B 19871104 (198744)
ADT DE 3520068 A DE 1985-3520068 19850604; GB 2161820 A GB 1985-14234 19850605; JP 60258297 A JP 1984-113949 19840605; US 4626365 A US 1985-737431 19850524
PRAI JP 1984-113949 19840605
IC B32B015-08; C08J005-16; C08K003-04; C08L027-12; C08L071-02; C10M103-04; C10M107-38; C10M125-10; C10M131-04; C10M169-04; C10N010-06; C10N020-06; C10N030-06; C10N040-02; C10N050-08; C10N080-00; F16C029-02; F16C033-20
AB DE 3520068 A UPAB: 19930925
Novel compsns. for sliding or **moving parts** are chosen from a) (i) 0.1-30 volume% Gp.A cpds. comprising TFE/HFP

(FEP) copolymer, TFE/perfluoroalkyl vinyl ether (PFA) copolymer TFE/ethylene (ETFE) copolymer, vinylidene fluoride (PVDF) copolymer, chlorotrifluoro-ethylene (PCTFE) **polymer** and fluoroethylene/propylene ether (EPE) copolymer, (ii) 0.1-35 volume% **metal** oxide mixture and the remainder (iii) PTFE in which the total content, excepting PTFE is approx.. 0.2-70 volume%, b) a compsn. containing (i) 0.1-50 volume% of at least one cpd. from Gp.A, (ii) a **metal** oxide mixture, (iii) a **metal** oxide, in which the total content of the **metal** oxide mixture and **metal** oxide is approx. 0.1-35 volume% and the remainder is PTFE, and the total content, excepting PTFE, is approx. 0.1-70 volume%, c) a compsn. containing (i) 0.1-50 volume% Gp.A cpds., (ii) a **metal** oxide mixture and (iii) at least one cpd. from Gp.B comprising a **metal** lubricant, e.g. Pb, Sn, and/or its alloys, a **metal** sulphide, a **metal** fluoride, a solid carbon containing lubricant, e.g. **graphite** fluoride, **graphite**, coke, coal etc., a fibrous material such as carbon fibre and **ceramic** materials e.g. SiC in which the total contents, excepting PTFE, is approx. 0.2-70 volume% and d) a compsn. containing (i) 0.1-50 volume% of at least one Gp.A cpd., (ii) a **metal** oxide mixture, (iii) a **metal** oxide and at least one Gp.B cpd. in which the total content of **metal** oxide mixture, **metal** oxide and Gp.B cpd. is approx. 0.1-35 volume% and the remainder is PTFE, and the total content of the components excepting PFTE is approx. 0.2-70 volume%.

USE/ADVANTAGE - The compsns. are useful materials for sliding or **moving parts** or coatings for reciprocating machinery e.g. hydraulic cylinders, motor vehicle shock absorbers, pumps, oil lubricating mechanisms, office automation equipt., textile machinery, domestic electric equipment, grinding equipment, piston rings, oil seals, etc., with low friction coefficients, high wear resistance and load bearing capacity.

0/0

FS CPI GMPI
FA AB
MC CPI: A04-E08B; A04-E10; A08-R; A12-H10

L75 ANSWER 44 OF 59 WPIX COPYRIGHT 2005 THE THOMSON CORP on STN
AN 1983-846339 [51] WPIX
DNN N1983-225670 DNC C1983-123517
TI Polyamide dummy bullets filled with **metallic** and lubricant particles - to eliminate use of ancillary brass rim.
DC A95 K03 Q79
IN NOTTIN, B; SEGUIN, J
PA (SFMF-N) SFM SOC FR MUNITION; (FRMU-N) SOC FRAN MUNITIONS
CYC 12
PI EP 96617 A 19831221 (198351)* FR 10
R: AT BE CH DE GB IT LI LU NL SE
FR 2528564 A 19831216 (198404)
EP 96617 B 19870128 (198704) FR
R: AT BE CH DE IT LI LU NL SE
DE 3369556 G 19870305 (198710)
CA 1264124 A 19900102 (199006)
ADT EP 96617 A EP 1983-401039 19830525; FR 2528564 A FR 1982-10180 19820611
PRAI FR 1982-10180 19820611
REP DE 1240442; FR 1173726; FR 1402731; FR 1407444; FR 1513883; FR 2142861; FR 2471576; GB 1175274
IC F42B005-00; F42B007-00; F42B011-40
AB EP 96617 A UPAB: 19930925

Dummy bullets for practice rounds for hand **guns** or shoulder arms are made of a plastics material (I) throughout which are dispersed particles of ductile **metal** or alloy and particles of a **solid lubricant** in quantities such that the overall relative density of the bullet is 3-5. Pref. the matrix material (I) is polyamide, opt. having (unfilled) a density of 1.04; tensile strength of 550 bars; elastic modulus of 10 K bars; Rockwell hardness (R scale) of 106. The **metal** particles are pref. of Pb, Cu or bronze (II) (Cu/Sn alloy), of 0.04-0.1mm dia. The **solid lubricant** is pref. MoS2 (III). The pref. proportions of (I)/(II)/ (III) are 15-25/75-85/0.1-1%, so that the resulting blend has a relative density of 4; tensile strength of 340 bars; elastic modulus of 18 k bars; and Rockwell hardness (R) of 106. The bullets may be made from blended material by injection moulding.

Eliminates the need for the body of a conventional plastics bullet to be complemented by a brass ring (a) to ensure that the bullet fits and moves through the bore of the **gun** without excessive wear or pressure, especially if the bore is rifled (grooved internally), and (b) to provide sufficient weight for a stable trajectory while being light enough to limit the range; hence avoids material and fabrication costs associated with the ancillary brass rim.

0/1

FS CPI GMPI
FA AB
MC CPI: A05-F01E; A08-M03; A08-R05; A12-T03; K03-A02

L75 ANSWER 45 OF 59 WPIX COPYRIGHT 2005 THE THOMSON CORP on STN
AN 1983-35058K [15] WPIX
DNN N1983-063348 DNC C1983-034238
TI Lubrication of mandrel bars used in rolling steel tubes - is carried out by electrostatic deposition of liquid or slid lubricant with separate liquid carrier where required.
DC M21 P42 P51
IN LAWSON, K T
PA (HEWR) HEAD WRIGHTSON & CO LTD
CYC 11
PI EP 76170 A 19830406 (198315)* EN 12
R: AT BE CH DE FR GB IT LI LU NL SE
GB 2106815 A 19830420 (198316)
PRAI GB 1981-29551 19810930; GB 1982-27992 19820930
REP DE 2732009; DE 725839; GB 2022471; US 3904346
IC B05B005-08; B21B017-02; B21B025-04
AB EP 76170 A UPAB: 19930925
The system introduces the technique of applies the lubricant to the mandrel bar by electrostatic deposition, pref. by electrostatic spraying. If the lubricant is a solid then it may be desirable to wet the bar with a suitable liquid before electrostatically spraying the **solid lubricant** on to the bar. Alternatively the **solid lubricant** may be in suspension in a liquid prior to spraying.

In one method of electrostatically spraying the lubricant the mandrel bar is supported on spaced, driven support rolls . Spray **guns** are used respectively to spray a liquid carrier pref. carbopol and a lubricant pref. **graphite** on to the mandrel bar. A high tension electrical supply is connected so that the rollers are earthed and the **gun** high tension electrical supply is connected so that the rollers are earthed adn the **gun** positively charged to charge the

graphite particles. Excess liquid is removed by the overhead electrically operated dryer or heater .
FS CPI GMPI
FA AB
MC CPI: M21-A03

L75 ANSWER 46 OF 59 WPIX COPYRIGHT 2005 THE THOMSON CORP on STN
AN 1981-01395D [02] WPIX
TI Self-lubricating tapered sabot for **projectiles** - made of nylon containing **solid lubricant.**
DC A95 K03 Q79
PA (KELS-I) KELSON R D
CYC 1
PI US 4239006 A 19801216 (198102)*
PRAI US 1978-928512 19780727
IC F42B013-16
AB US 4239006 A UPAB: 19930915
One-piece sabot for projection through a rifled **gun** barrel is made of a nylon resin containing dispersed particles of a **solid lubricant.** The sabot comprises a cylindrical sleeve which is closed at the rear end, open at the front end, and is tapered towards the front end. The tapered section has several axial slots spaced equidistantly around the sleeve. The slots extend from the front end for a distance at least equal to the length of the tapered section. The **solid lubricant** is pref. MoS2 or **graphite.**
The sabot readily separates from the bullet after firing and has minimum wind resistance. It is easily loaded and can be used in both rifles and pistols.
FS CPI GMPI
FA AB
MC CPI: A05-F01E; A08-M03; A12-T03; K03-A02

L75 ANSWER 47 OF 59 WPIX COPYRIGHT 2005 THE THOMSON CORP on STN
AN 1981-06855D [05] WPIX
TI Low friction wear resistant **moving parts** for precision mechanism - uses soft **metal** or **solid lubricant** impregnated into porous chromium oxide coated chromium plating.
DC M13 Q62
PA (SUWA) SUWA SEIKOSHA KK
CYC 1
PI JP 55152171 A 19801127 (198105)*
JP 61030037 B 19860710 (198632)
ADT JP 55152171 A JP 1979-59533 19790515
PRAI JP 1979-59533 19790515
IC C23C009-00; C25D005-10; C25D007-10; F16C033-04
AB JP 55152171 A UPAB: 19930915
Cr and porous Cr oxide diffusion layer is electrolytically formed on the surfaces of sliding parts by using a low temperature Cr diffusion plating solution which consists of chromic acid, Ba salt such as Ba nitrate and organic acid such as acetic acid.
Then soft **metal** such as Pb, Cd, Au, Ag, In, Sn etc. or **solid lubricating** agent such as (CF)n, MoS2, BN or like is deposited in the cavities (holes) of the porous Cr oxide layer by the electroplating method so that the cavities are filled with deposited **metal** or **solid lubricating** agent. Cr diffusion layer coated with porous Cr oxide layer is deposited on the surfaces of

sliding parts by the Cr electroplating method initially.
Increased wear resistance and lubricating properties of small precision sliding parts such as wrist watch parts. reel shaft etc. made of steel by forming a lubricating film is obtd.

FS CPI GMPI
FA AB
MC CPI: M13-K

L75 ANSWER 48 OF 59 WPIX COPYRIGHT 2005 THE THOMSON CORP on STN
AN 1979-53361B [29] WPIX
TI Coating the inner surface of rough mould for glass - using mixture of volatile solvent, **solid lubricant** and binder, followed by drying and repeating three times.
DC G02 L01
PA (NIPG) NIPPON GLASS CO LTD
CYC 1
PI JP 54071105 A 19790607 (197929)*
PRAI JP 1977-137233 19771117
IC C03B009-24; C03B039-00
AB JP 54071105 A UPAB: 19930901
The inner surface of the blank mould is, after being well wiped with a cleaner, coated with a mixture of a volatile solvent, e.g., anhydrous ethanol, benzene, toluene, methanol, etc., a **solid lubricant**, e.g., flaky **graphite**, boron nitride, silicon nitride, tungsten disulphide etc., and a binder, e.g., a quick drying varnish, compounded in a ratio of 100:5 anhydrous ethanol: quick drying varnish by volume and in a ratio of 10:1 the anhydrous ethanol-quick drying varnish mixture: flaky **graphite** by weight, by means of a spray **gun**, etc., and then dried. The operation is repeated about three times.
The method can be performed at ordinary temperature in several minutes, thus preventing the damage to mould and lengthening the life of mould, and also obviates the needs for burning mould, thus causing no air pollution.
FS CPI
FA AB
MC CPI: G02-A05D; L01-E06

L75 ANSWER 49 OF 59 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 1980:44293 HCAPLUS
DN 92:44293
ED Entered STN: 12 May 1984
TI Temperature stability of molybdenum disulfide **solid lubricant** coatings in vacuum
AU Matveevskii, R. M.; Lazovskaya, O. V.; Popov, S. A.
CS Inst. Study Mach., Moscow, USSR
SO ASLE Spec. Publ. (1978), ASLE SP-6, ASLE Proc., 41-4
CODEN: ASPPDD
DT Report
LA English
CC 51-7 (Fossil Fuels, Derivatives, and Related Products)
AB The results of a frictional investigation of some **solid lubricant** coatings based on MoS2 sliding in a vacuum environment at 293-973 K are presented. The steel surfaces were coated with both organic and inorg. bonded films and with unbonded films. In the latter thermochem. and detonation **gun** methods were used. The expts. were carried out in an apparatus which consisted of a steel ball, sliding against a coated, rotating disk at high contact pressure. Limiting working temps. of the coatings

depend on the nature of binders; for the coatings without binders, on the adhesion and strength of molybdenite particles to metal surfaces. The coatings with a polyamide binder show higher temperature stability.

ST lubricant molybdenum disulfide temp stability

IT Polyamides, uses and miscellaneous
(binders, for molybdenum disulfide **solid lubricant** coatings, temperature stability of)

IT **Lubricants**
(**solids**, molybdenum sulfide, temperature stability of)

IT **1317-33-5**, properties
(temperature stability of **solid lubricant** coatings of, in vacuum)

L75 ANSWER 50 OF 59 WPIX COPYRIGHT 2005 THE THOMSON CORP on STN
AN 1979-06652B [04] WPIX
TI Iron shot coated with lubricating oil and **solid lubricant** - to prevent wear of shotgun muzzle.
DC K03 Q79
PA (NIOF) NIPPON OILS & FATS CO LTD
CYC 1
PI JP 53142098 A 19781211 (197904)*
PRAI JP 1977-57452 19770518
IC F42B007-08
AB JP 53142098 A UPAB: 19930901
A case shot for a shotgun comprises a hot cup filled with iron shot coated with lubricating oil and a **solid lubricant.** Pref. the **solid lubricant** is paraffin, **metal** soap, **graphite**, or molybdenum disulphide, and the lubricating oil is gear oil or grease. The amount of **solid lubricant** is 1-5 weight% to the weight of the iron shot. The shot cup is of superimposed type.

In an embodiment, iron shot is coated with gear oil and paraffin and packed into a shot cup. The shot cup is covered with a plastic casing and a cartridge case is attached to the bottom of the plastic casing. A **gunpowder**-push plate, **gunpowder**, a base wad and a detonation cap are then located in the cartridge case.

FS CPI GMPI
FA AB
MC CPI: K03-A01

L75 ANSWER 51 OF 59 COMPENDEX COPYRIGHT 2005 EEI on STN
AN 1979(9):4158 COMPENDEX DN 790970952
TI TEMPERATURE STABILITY OF MOLYBDENUM DISULPHIDE **SOLID LUBRICANT** COATINGS IN VACUUM.
AU Matveevsky, R.M. (Inst for the Study of Mach, Moscow, USSR); Lazovskaya, O.V.; Popov, S.A.
SO ASLE Proc-Int Conf on Solid Lubr, 2nd, Denver, Colo, Aug 15-18 1978 Publ by ASLE (SP-6), Park Ridge, Ill, 1978 p 41-44
PY 1978
LA English
AB This paper presents the results of a frictional investigation of some **solid lubricant** coatings based upon molybdenum disulphide sliding in a vacuum environment at temperatures from 293 to 973 K. The steel surfaces were coated with both organic and inorganic bonded films and with unbonded films. In the latter, thermochemical and detonation **gun** methods were used. The experiments were carried out in an

apparatus which consisted of a steel ball sliding against a coated, rotating disc at high contact pressure. It was shown that limiting working temperatures of the coatings depended on the nature of binders; for the coatings without binders, on the adhesion and strength of molybdenite particles to **metal** surfaces.

CC 607 Lubricants & Lubrication; 421 Materials Properties; 804 Chemical Products

CT ***LUBRICANTS**:**Solid** Films; MOLYBDENUM COMPOUNDS; SULFUR COMPOUNDS; THERMAL EFFECTS:Stability

ST MOLYBDENUM DISULFIDE

L75 ANSWER 52 OF 59 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 1976:466661 HCAPLUS

DN 85:66661

ED Entered STN: 12 May 1984

TI Coating a machine part subject to sliding friction by spray coating

IN Beyer, Horst

PA Goetzewerke Friedrich Goetze A.-G., Fed. Rep. Ger.

SO Ger., 2 pp.
CODEN: GWXXAW

DT Patent

LA German

IC C23C

CC 55-6 (Ferrous Metals and Alloys)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 1771640	A	19720113	DE 1967-1771640	1968 0620
	DE 1771640	B2	19760219		
	DE 1771640	C3	19760930		
PRAI	DE 1967-1771640	A	19680620		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
DE 1771640	IC	C23C

AB Parts, such as piston rings, were spray-coated with Mo powder and MoS2 as lubricant. The MoS2 was encased by Ni powder to minimize combustion of the lubricant, which tends to occur at the high temps. required for spraying with Mo. The Mo powder and encased lubricating agent could be sprayed from one **gun** as a mixture or simultaneously from 2 sep. **guns.**

ST coating spray molybdenum lubricant; nickel powder coating molybdenum sulfide; piston ring molybdenum coating

IT Piston rings
(coating of, with molybdenum powder and sulfide lubricant)

IT Coating process
(of machine parts, with molybdenum powder and nickel-coated molybdenum sulfide lubricant)

IT **Lubricants**
(**solid**, molybdenum sulfide, nickel-powder coated, for molybdenum-powder spray coating on machine parts)

IT **7439-98-7**, uses and miscellaneous
(coating with, on machine parts with molybdenum sulfide lubricant)

IT **7440-02-0**, uses and miscellaneous

(coating with, on molybdenum sulfide powder lubricant for spray coating of machine parts with molybdenum powder)

IT **1317-33-5**
(lubricant, nickel powder-coated, for molybdenum-powder spray coating of machine parts)

L75 ANSWER 53 OF 59 WPIX COPYRIGHT 2005 THE THOMSON CORP on STN
AN 1977-11787Y [07] WPIX
TI Surface treatment of movement parts from watches - by forming film of **solid lubricant** on parts surface.
DC A35 M13 S04
PA (SUWA) SUWA SEIKOSHA KK
CYC 1
PI JP 51151634 A 19761226 (197707)*
PRAI JP 1975-77753 19750623
IC C23C011-00; C23C013-00; C23F007-02; G04B037-00
AB JP 51151634 A UPAB: 19930901
On the surface of the **moving parts** of watches consisting of **metals**, plastics, **ceramics**, etc., thin films of **metals** such as Mo, W, Ta, Nb, Cd, Pd, etc. are coated. Plating, ion plating, evaporation or sputtering may be used. The coated **metal** is then sulphided with H2S, or oxidised with H2O, to form a sulphide film or oxide film. A compact **solid lubricant** film of liberal thickness and high film uniformity is obtd.
FS CPI EPI
FA AB
MC CPI: A08-M03; A11-C04B; A12-H; A12-W; M13-D03; M13-K; M14-D

L75 ANSWER 54 OF 59 WPIX COPYRIGHT 2005 THE THOMSON CORP on STN
AN 1974-71971V [41] WPIX
TI Self-lubricating synthetic rubber sealing compsn. - containing liquid and **solid lubricants** and **metal** and/or **metal** oxide powders.
DC A12 A88 A97
PA (SAKA-N) SAKAGAMI SEISAKU-SHO KK
CYC 1
PI JP 49034460 B 19740913 (197441)*
PRAI JP 1970-47877 19700603
IC C08C011-04
AB JP 74034460 B UPAB: 19930831
The title compsn. has a very low friction, high thermal conductivity and little tendency for adhesion to **metal** parts, and provides a durable seal for **moving parts** against high pressure working fluids without external lubrication. The liquid lubricants include process oils, synthetic lubricating oils and petroleum-based lubricating oils including rubber softeners with aniline point of 60 to 130 degrees C. The **metal** powders used are finer than 100 mesh and include **metals** and alloys such as Cu, Al, Sn, Zn, Pb, bronze, brass, cermet, etc., the **metal** oxides include oxides of Cu, Pb, Cd, Fe and Cr. The **solid lubricants** used are typified by Teflon, **graphite** and MoS2. The pref. formulation contains 100 pts. rubber, 100 to 200 pts. **metal** powder, 10 to 50 pts. liquid lubricant and 10 to 100 pts. **solid lubricant.**
FS CPI
FA AB
MC CPI: A08-M03; A08-R05; A12-H08

L75 ANSWER 55 OF 59 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 1975:33068 HCAPLUS
DN 82:33068
ED Entered STN: 12 May 1984
TI Lubricating properties of molybdenum disulfide under a high vacuum during strong cooling and irradiation
AU Karapetyan, S. S.; Os'kin, V. S.; Ponomarev, A. N.; Silin, A. A.
CS USSR
SO Problemy Treniya i Iznashivaniya (1974), 5, 131-4
CODEN: PTIZA7; ISSN: 0370-2197
DT Journal
LA Russian
CC 51-8 (Fossil Fuels, Derivatives, and Related Products)
AB The lubricating properties of MoS2 and graphite were compared. The behavior of MoS2 [**1317-33-5**] was studied by measuring the coefficient of friction under high vacuum and low temperature conditions to eliminate decomposition by O or H2O. The relation between the frictional force and load at a constant velocity was determined with a special apparatus Measurements were made on unirradiated specimens and also on specimens irradiated by 3 keV electrons from an electron **gun** (1013 erg/g dose). The character of the load curves did not change with temperature, but the coefficient of friction was reduced at low temps. Irradiation of the specimen significantly reduced the coefficient of friction at room temperature, but had little effect at low temps.
ST **lubricant solid** irradn vacuum; graphite lubricant irradn vacuum; molybdenum sulfide lubricant
IT Lubricants
(graphite and molybdenum sulfide, irradiation and vacuum effect on)
IT Radiation, chemical and physical effects
(on graphite and molybdenum sulfide, as lubricants)
IT **1317-33-5**
(lubricants, irradiation and vacuum effect on)

L75 ANSWER 56 OF 59 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 1971:90464 HCAPLUS
DN 74:90464
ED Entered STN: 12 May 1984
TI Copper-lead alloy
IN Turkisher, Robert; Lundin, Charles E.
PA Colorado Springs National Bank
SO U.S., 3 pp.
CODEN: USXXAM
DT Patent
LA English
IC C22C
INCL 075135000
CC 56 (Nonferrous Metals and Alloys)
FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 3556779	A	19710119	US 1968-706640	1968 0219
	GB 1254327	A	19711117	GB 1969-1254327	1969 0218
	JP 48041413	B4	19731206	JP 1969-11541	1969

					0218
	ES 363808	A1	19710316	ES 1969-363808	
					1969
					0219
	US 3719477	A	19730306	US 1970-53953	
					1970
					0710
	US 3894957	A	19750715	US 1973-321030	
					1973
					0104
PRAI	US 1968-706640	A	19680219		
	US 1970-53953	A2	19700710		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
US 3556779	IC	C22C
	INCL	075135000
US 3556779	NCL	420/491.000
US 3719477	NCL	420/491.000; 075/338.000; 148/432.000; 427/319.000
US 3894957	NCL	508/123.000; 508/150.000

AB An improved Cu-Pb alloy is provided which is substantially pure, but in n which extremely fine traces of the homogeneity promoting elements remain in suspension. For example, Cu is placed in a graphite crucible and brought to 1250-1350 ° by induction heating. When the Cu is melted and at a temperature of .apprx.1275°, Pb and the homogeneity promoter are added. Violent agitation of the melt ensues with the formation of gas. The temperature of the mixture is maintained for .apprx.3 min. The melt is then allowed to solidify during which time the agitation continues. After solidification, the temperature of the alloy is permitted to drop to ambient. The resulting ingot is free of porosity. As the homogeneity promoter, powdered graphite and Na2CO3 are preferred. The alloys have the structural characteristics required to produce optimum antifrictional qualities. They have high thermal conductivity and low elec. resistivity, and they are easily sintered, drawn, extruded, rolled, and machined without losing their superior antifriction qualities. The alloy may be used as a coating for small arms ammunition and as a rotating band for ammunition. It may be combined in powder form with greases and oils to provide superior lubricants for moving parts.

ST copper lead alloys prodn; lead copper alloys prodn; homogeneous copper lead alloys prodn; graphite addn copper lead alloys; carbonate addn copper lead alloys

IT **Projectiles**
(coating of small-arms, with copper-lead homogeneous alloys for lubrication)

IT Lead alloys, containing
(copper-, casting of homogeneous)

IT Lubricating grease additives
Lubricating oil additives
(copper-lead alloys for, homogeneous)

IT Bearings
(copper-lead homogeneous alloys for)

IT Coating materials
(copper-lead homogeneous alloys, for bearings)

IT Casting process
(for copper-lead alloys, homogeneous)

IT Copper alloys, base
(lead-, casting of homogeneous)

IT **Lubricants**
(**solid**, copper-lead homogeneous alloys for)
IT 497-19-8, uses and miscellaneous
(in copper-lead alloy manufacture, homogeneity in relation to)
IT **7782-42-5**, uses and miscellaneous
(in copper-lead alloy manufacture, homogeneity in relation to powdered)

L75 ANSWER 57 OF 59 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 1968:97135 HCAPLUS
DN 68:97135
ED Entered STN: 12 May 1984
TI Plasma spraying, a new method of applying solid-film lubricants
AU Hopkins, Vern; Hubbell, R.; Kremith, R.
CS Midwest Res. Inst., Kansas City, MO, USA
SO Lubrication Engineering (1968), 24(2), 72-80
CODEN: LUENAG; ISSN: 0024-7154
DT Journal
LA English
CC 48 (Unit Operations and Processes)
AB Ingredients of metal, resin, and ceramicbonded **solid** **lubricants** were sprayed onto metal substrates with a plasma **gun** containing either a standard, plastic, or dual-port entry electrode. Films of Ni and graphite, Cu and graphite, Ni and WS2, graphite and Pb, Ag and MoS2, Ni and MoS2, and graphite and Zn borate applied with the standard electrode **gun** exhibited high friction because the lubricant ingredients were oxidized or degraded at the high plasma temperature or because lubricant and binder percentages were modified. When the plastic electrode **gun** was used to apply films of Cr2O3 and WS2; MoS2, polyethylene, and chlorinated polyester; Teflon and Cr2O3; Teflon and MoS2; Ni and MoS2; Ni and WS2; MoS2 and Ag; and WS2 and Ag, the best results were obtained with resin-bonded films. A polyethylene-bonded MoS2 **solid** **lubricant** film is currently being applied with this type of **gun** on a production-line basis. The poorest results were obtained with ceramic bonded films because the binder was only partially fused as a result of lower plasma temperature and slower particle velocities. A dual-port electrode **gun** was designed to introduce sulfide lubricants in the cooler downstream region of the plasma and high fusion temperature binders in the hotter upstream region. A film with the desired lubricant-to-binder ratio could not be obtained with either the dual-port or standard electrode **gun.**
ST FILMS; FILMS; FILMS; LEAD GRAPHITE LUBRICANT FILMS; SILVER MO DISULFIDE LUBRICANT; PLASMA SPRAYING LUBRICANT FILMS; MOLYBDENUM DISULFIDE AG LUBRICANT; GRAPHITE NI LUBRICANT FILMS; ZINC BORATE GRAPHITE LUBRICANT; COPPER GRAPHITE LUBRICANT FILMS; LUBRICANT FILMS PLASMA SPRAYING; FILMS LUBRICANT PLASMA SPRAYING; SPRAYING PLASMA LUBRICANT FILMS; NICKEL GRAPHITE LUBRICANT FILMS
IT Electric discharge
(in **lubricant solid** film deposition by spraying)
IT Spraying
(**lubricant solid** film deposition by, with elec. plasma **gun**)
IT Lubricants
(spray deposition of solid film, by elec. plasma **gun**)
IT Lead fluoride
(lubricating film from graphite and, deposition of, by elec. plasma **gun**)

IT **7440-02-0**, uses and miscellaneous **7440-22-4**, uses and miscellaneous **7440-50-8**, uses and miscellaneous **9002-84-0**, uses and miscellaneous 9002-88-4, uses and miscellaneous
(**lubricant solid** film containing, as binder, deposition of, by elec. plasma **gun**)
IT **1317-33-5** 12138-09-9
(**lubricant solid** films containing, deposition of, by elec. plasma **gun**)
IT 10361-94-1
(lubricating film from graphite and, deposition of, by elec. plasma **gun**)
IT 1308-38-9, uses and miscellaneous
(lubricating films containing, deposition of, by elec. plasma **gun**)

L75 ANSWER 58 OF 59 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 1967:38938 HCAPLUS
DN 66:38938
ED Entered STN: 12 May 1984
TI Low-friction thermosetting resin coatings
IN Paulus, George F.
PA Acheson Industries, Inc.
SO U.S., 6 pp.
CODEN: USXXAM
DT Patent
LA English
INCL 260037000
CC 42 (Coatings, Inks, and Related Products)
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI US 3293203		19661220	US	1962 0326

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
US 3293203	INCL	260037000
US 3293203	NCL	524/088.000; 427/385.500; 427/388.200; 427/388.500; 427/389.000; 427/389.700; 427/389.900; 427/393.500; 524/403.000; 524/404.000; 524/406.000; 524/407.000; 524/430.000; 524/434.000; 524/435.000; 524/450.000; 524/451.000; 525/104.000; 525/121.000; 525/129.000; 525/144.000; 525/157.000; 525/165.000

AB The title compds. were prepared from a dispersion of poly(tetrafluoroethylene) (I) particles and a thermosetting resin in a resin solvent. I constitutes 5-60% of the solids content and the resin constitutes 40-95%. Thus, a dispersing medium was formed from ethylene glycol monoethyl ether acetate 20.8, PhMe 20.8, BuOH 10.4, and iso-BuCOMe 56.4 parts and was blended with 73.6 parts of a phenol-HCHO varnish and 18.0 parts I (mol. weight 2000, particle size 5 μ). The dispersion was sprayed onto C steel panels with a spray **gun** at 40 psi. After air drying, the panels were cured at 300°F. for 1 hr. to yield a 0.5-mil coating with a coefficient of static friction 0.079 and Hartman wear life 2.5 hrs. Similar coatings were prepared [resin,

friction coefficient, Hartman wear life (hrs.) given]: alkylated urea-HCHO resin, 0.052, 2; epoxy modified phenol-HCHO resin, 0.052, 1; silicone resin, 0.061, 0.25; soybean oil alkyd resin, 0.079, 1; epoxy resin, 0.044, 1; acrylic resin, 0.070, 0.25; and polyurethan resin, -, -.

ST THERMOSETTING RESIN COATINGS; COATINGS THERMOSETTING RESIN; FRICTION LOW RESIN COATINGS; EPOXY MODIFIED PHENOLIC COATINGS; SILICONE RESIN COATINGS; ACRYLIC RESIN COATINGS; POLYURETHAN RESIN COATINGS; UREA FORMALDEHYDE COATINGS

IT Friction
(antifriction materials, tetrafluoroethylene polymer coatings as, containing thermosetting resinous products)

IT Lubricants
(tetrafluoroethylene polymer coatings as, containing thermosetting resinous products, alone or with particles of **solid lubricants**)

IT Coating materials
(tetrafluoroethylene polymers, containing thermosetting resinous products, as antifriction materials)

IT **9002-84-0**, uses and miscellaneous
(coatings of phenol-formaldehyde condensation products or related thermosetting resins and, as antifriction materials)

L75 ANSWER 59 OF 59 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 1951:59921 HCAPLUS
DN 45:59921
OREF 45:10180g-i,10181a-b
ED Entered STN: 22 Apr 2001
TI Prevention of corrosion in naval aircraft. I
AU Promisel, N. E.; Mustin, G. S.
CS Dept. of the Navy, Bur. of Aeronaut., Washington, DC
SO Corrosion (Houston, TX, United States) (1951), 7, 339-52
CODEN: CORRAK; ISSN: 0010-9312
DT Journal
LA Unavailable
CC 9 (Metallurgy and Metallography)
AB Aircraft corrosion prevention requires proper design, proper selection of materials, and control of fabrication processes. Free drainage, avoidance of dissimilar metal contacts, electrochem. insulation, proper heat treatment, and cleanliness are stressed. Water contact, essential to common corrosion, is prevented or de-activated by chemical surface treatments, plating, organic coatings, preservative compds., dehydration, hermetic sealing, or other waterproofing techniques. Sacrificial protection, where advantageous, is provided by cladding, plating, and readily replaceable parts. Special consideration is given to stress corrosion cracking, thin Mn alloy sheets, engine cylinders, and other internal engine parts, compressor housings, propeller shafts and other operating mechanisms where routine treatment is not practicable. Use of Cd-Sn plating, porous Cr plating, Ni plating, phenolic resin coating, and phosphate treatments have given good results in these special applications. Exhaust stack failures and compressor blading failures from intergranular corrosion have occurred. Wear, erosion, and friction oxidation are also potential threats. Use of MoS2 is promising in some applications. Equipment normally corrosion-free when operative needs additional protection during idleness. Total dehydration works well if properly designed and maintained. Maximum ventilation is the next best method provided supplementary preservatives are used in the proper place. Frequent inspection of the airplane for

corrosion and such preventive maintenance features as water washing seaplanes, touch up of worn or abraded **paint surfaces**, use of addition preservatives on selected spots and proper maintenance of **lubrication** are required. The use of plating in the repair of damaged spots is common. Mg is promising as a Cd substitute, and diffused Si and Al coatings show promise of making Mo oxidation-resisting. Ti and its alloys may solve some present difficulties.

IT Phenol condensation products
(coating with, on naval aircraft)
IT Aircraft
(corrosion of, prevention of)
IT Engines
(corrosion prevention in, in naval aircraft)
IT Propellers
(corrosion prevention in, in shafts of naval aircraft)
IT Coating(s)
(for aircraft)
IT Cladding
(in corrosion prevention on naval aircraft)
IT Oxidation
(of molybdenum, with Al or Si, prevention of)
IT Drying
(of naval aircraft during storage)
IT Corrosion
(prevention of, in naval aircraft)
IT Silicon, molybdenum
(cementation with)
IT 7440-32-6, Titanium
(alloys, in aircraft)
IT 7439-98-7, Molybdenum
(cementation with Al or Si)
IT 7429-90-5, Aluminum
(cemented on Mo)
IT 11109-57-2, Cadmium, tin-
(electroplating with, of naval aircraft)
IT 7440-02-0, Nickel 7440-47-3, Chromium
(electroplating with, on naval aircraft)
IT 7440-32-6, Titanium
(in aircraft)
IT **1317-33-5**, Molybdenum sulfide, MoS2
(in corrosion prevention, in naval aircraft)
IT 7439-95-4, Magnesium
(in naval aircraft)